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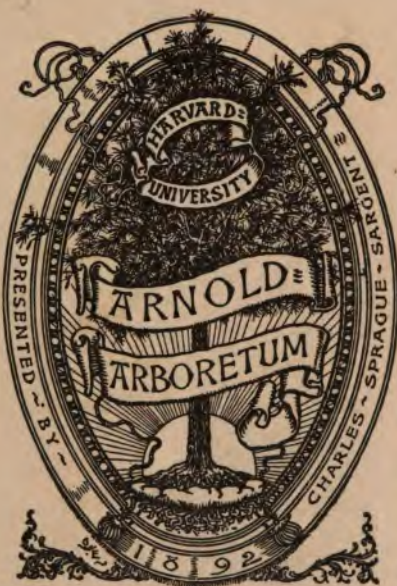
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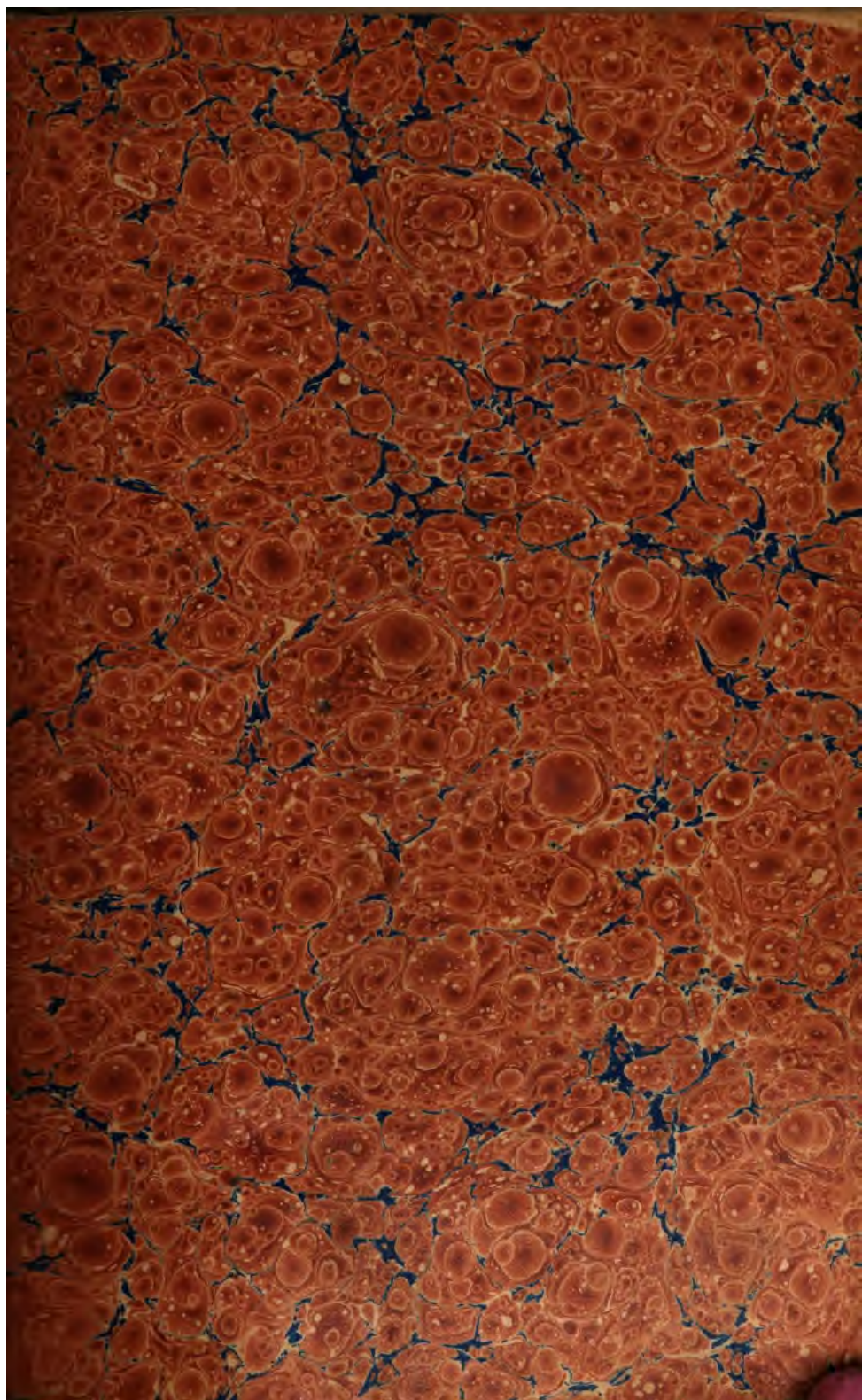
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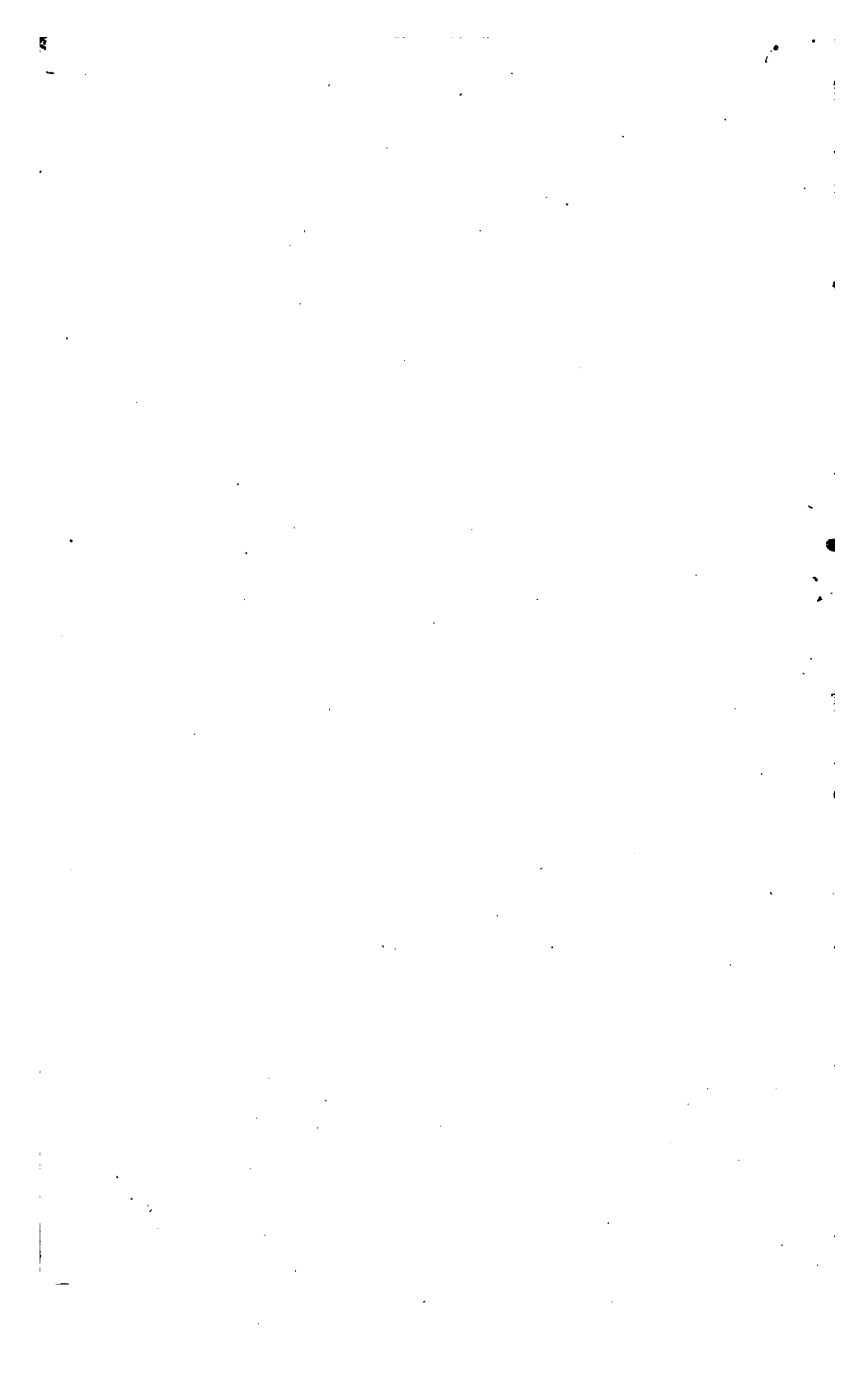
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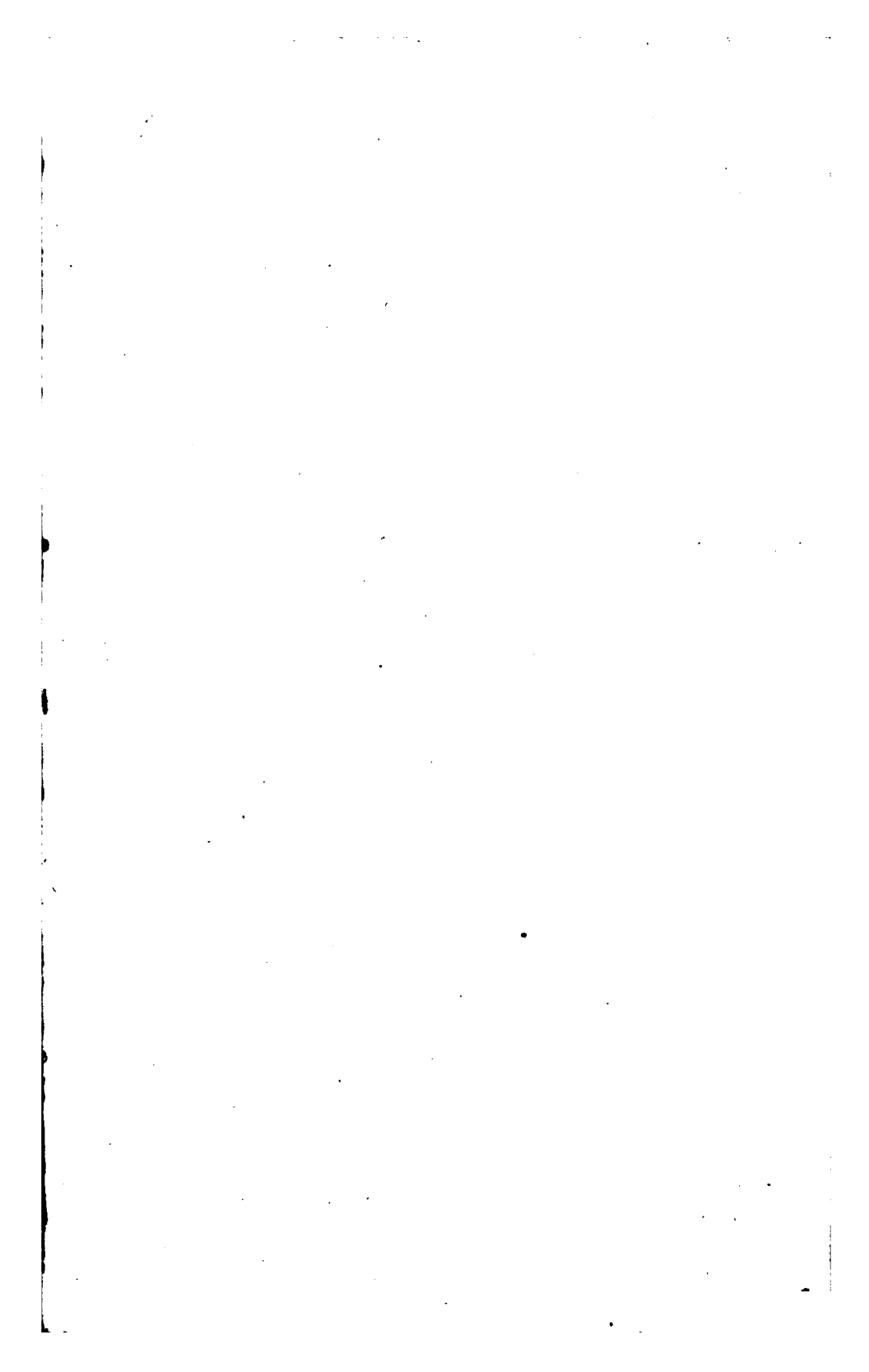
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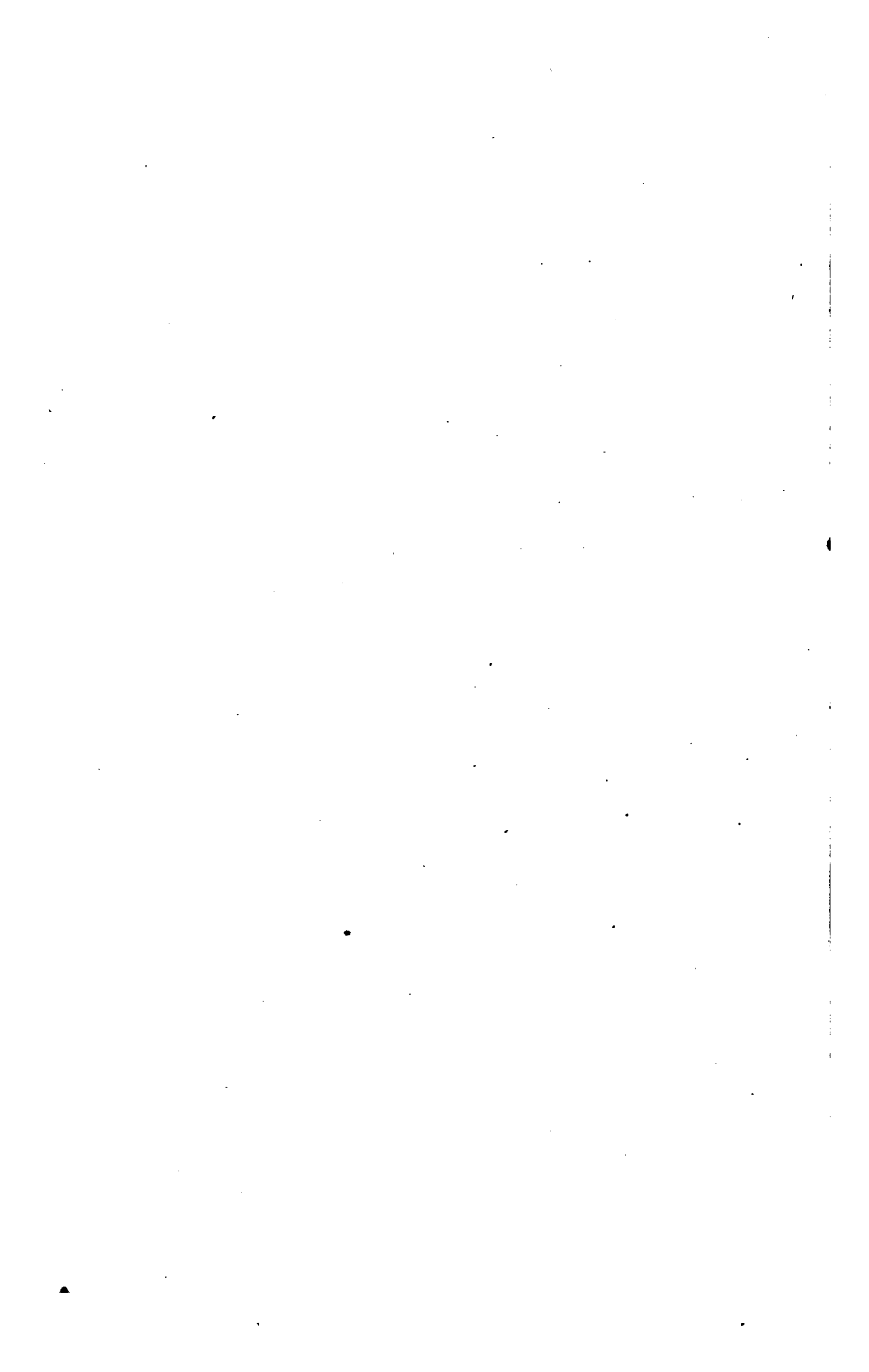
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**AN IMPROVED SYSTEM
OF
*NURSERY GARDENING.***

[Entered at Stationers' Hall.]

(1)

AN
Improved System
OF
NURSERY GARDENING,

FOR PROPAGATING
FOREST AND HARDY ORNAMENTAL,
EVERGREEN AND DECIDUOUS TREES AND SHRUBS ;
OF GENERAL DESCRIPTION,
BY SEEDS OF BRITISH PRODUCE :

UNIFORMLY RIPENING IN FAVORABLE SEASONS:
Which may be found, more or less, in every County throughout
GREAT BRITAIN.

*Containing ample Directions for COLLECTING AND PRESERVING
them in the greatest Perfection ;*

With competent Instructions for forming

A SEEDLING NURSERY ;

*Describing the most eligible Situations, suitable Exposure, and favor-
able Soils ; Method of forming the Seed-Beds ; also, the proper
Time and Manner of sowing the Seeds : with the surest
Preventives of Injury from scorching Sun, and the
Depredations of Birds, Snails, and Worms, the
Common Enemies of Seedling Plants : The
result of actual researches and long
Experience.*

Peculiarly interesting to Nobility and Gentry, and the Agricultural,
Ornamental, and Scientific Planter.

BY THOMAS HAYNES.

PROPAGATOR OF TREES, SHRUBS AND PLANTS,
OUNDLE, NORTHAMPTONSHIRE.

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## INTRODUCTION.

EXPERIENCE has fully proved, that *Seedling Plants*, invariably produce the most thriving and substantial trees; and that the most cheap, facile, and abundant mode of propagating *FOREST* and hardy *ORNA-MENTAL TREES* and *SHRUBS*, of almost every description, is *by seeds*: If therefore, such mode of increase is eligible and advantageous, it must be of importance to obtain their seeds new and genuine; as on this circumstance, success materially depends. In favorable seasons, by diligent attention to these directions, they may be easily, cheaply, and abundantly collected, in the fullest maturity and perfection; as they will be found to be, more or less, the common produce of every County in Great Britain. Notwithstanding, the several varieties of *TREE SEEDS* are not to be collected in a state of full maturity, in less than eleven months in each year; and although some seeds, soon as they are ripe fall from the trees; others are immediately devoured by birds, or blown away by boisterous winds; they may all be readily gathered in their respective seasons, by a direct reference to the several varieties. The most eligible processes of *getting out* and *cleansing* seeds, are familiarly explained; by which, they will be abundantly obtained without injury, and at little trouble or expence; and as strict attention to their preservation until the season of sowing, is indispensably necessary to prevent their being spoiled, or destroyed; such instructions are given, as will effectually secure them from common accident or injury. Whereas, on these seeds being indiscriminately collected, without due regard to their maturity or preservation; it cannot be wondered, that in such cases seedling crops prove abortive. As the seeds of various *TREES*, *SHRUBS* and *PLANTS*, do not vegetate until the *second* Spring after gathering, such are distinctly noticed, in order that they be allowed the necessary attention to their preservation until the season of sowing. Of the many varieties of *TREE SEEDS* which will freely grow the *first* season, there are several that by due care and attention to their preservation, may be kept good until the *following* Spring, when they will also grow very freely; and as all seasons are not alike for maturing and ripening these seeds, great advantage will frequently result from laying in store a *double stock* of such, in seasons when they are *fully perfected*; especially of those that will not freely ripen in common seasons: these also are clearly pointed out, which the author's long experience, has enabled him to notice with accuracy.

Seasons being subject to variation, the time of *TREE SEEDS* attaining due state of maturity, must be supposed to vary accordingly.

No six succeeding seasons could afford better opportunity of noticing this, than those of 1804, 5, 6, 7, 8 and 9; during each of which, the author's attention was particularly and minutely engaged in this business; wherein, the difference in the *time of ripening* was punctually observed; the state of the crops accurately noticed; and the variety of seasons particularly ascertained.

By describing the two former, unlike as to warmth afforded by the sun, it will be easy to form a tolerably accurate idea of the productions which may be expected from future various seasons.

In the former, 1804, the Spring was moderately forward; the early part of the Summer inclined to sun and warmth, affording fre-

quent, genial, fostering showers. Midsummer became warm, and exclusive of about ten days remarkably close, warm, moist, growing weather, and somewhat hazy prior to the wheat harvest here; the remaining part of that season was generally sunny and dry; with a continuance of fine weather almost to the end of November: which proved remarkably favorable to ripening and gathering the several varieties. Whereas, in the following, the Spring was somewhat cold and backward; the early summer months although uniformly favorable to vegetation, were succeeded by after months affording very small proportion of sun, and frequently not more than one warm day in a week throughout July and August; that from a want of its genial and friendly influence at that important crisis, the seeds of many sorts might be literally said to have perished in Embryo, or at least only to have afterwards attained immature and imperfect growth.

It should be remarked, that although the former season freely produced seeds of Trees and Shrubs, less free to ripen, being natives of warmer climates, in great maturity and perfection; in the latter, the seeds of the more common and hardy trees, in many instances did not attain their common size and substance even at a late and unusual period.

In wet and cold rainy seasons, this might have been expected; but it should be observed, that neither the Spring, Summer, or Autumn of 1805, was remarkable for copious moisture; from which, it is evident that this great defect proceeded solely and entirely from the want of genial and propitious warmth proceeding from that universal parent of fructification and maturation, the sun: Hence, it may be uniformly expected, that in proportion as seasons are more or less sunny and warm, these seeds will be perfected, as well as ripen earlier or later.

The directions offered for collecting TREE SEEDS, may be considered nearly consonant with the season 1804; and as that has been somewhat minutely detailed, inferences may be drawn from thence for future seasons. A punctual attention to these instructions, will enable every person to procure them in the fullest state of maturity and perfection possible; but it will be right to consider, that where large quantities are required, it may be necessary to begin the business of collecting somewhat earlier, that they be timely obtained; especially as many sorts, when fully ripe, remain only a very short time on the trees.

As TREE SEEDS cannot be alike timely matured in all situations; we remark, that these observations have been confined to inland Counties, as those of Bedford, Huntingdon and Northampton, nearly in the centre of Great Britain; and that in various other parts of the united Kingdom, they must be expected to ripen earlier or later, as the situations of Seed-bearing trees may be more South or Northward.

As PRIVATE NURSERIES are now become general, especially with the NOBILITY and GENTRY of large landed property; a rational attempt to promote such at an easy expense, may, it is presumed, be thought to merit encouragement; the common mode of forming such, being by transplanting one and two years old seedling trees, which afford an ample profit to the skilful nurseryman: that a very considerable saving will be made, by raising such in these nurseries, especially from new seeds, *annually collected at home*, at a trifling expense.

A further advantage is, that seedling plants thus raised, will be found far more safe and certain to succeed in transplanting, than those purchased from distant Seminaries; and being always at hand, the planter can be subject to no delay or loss of time, whenever the business of bedding out, or transplanting is necessary or convenient.



In situations where a professed or scientific Gardener is employed, such a treatise may be thought superfluous; but where a SEEDLING NURSERY is required, it is of importance to be satisfied, that such Gardener has rendered himself fully competent to the business; as in this particular, THEORY without PRACTICE, will be found very insufficient; and it ought to be understood, that comparatively few Gardeners have had favorable opportunity of fully and practically acquainting themselves with the minutiae of this important concern; and it is reasonably concluded, that there are very few, at most, who will make pretensions to a general knowledge of collecting perfected TREE SEEDS; such being a business, totally distinct from the employ of Gardeners in general.

Without a competent knowledge of the various soils necessary, and most favorable to the growth of the numerous varieties of TREES, SHRUBS and PLANTS, in their infant state; suitable exposure of seed beds; with the exact time of sowing the seeds; particular mode of preparing the beds; proper manner of sowing and covering the seeds of various size and strength; together with the means necessary to secure and defend the young plants from the almost innumerable accidents and enemies to which they are exposed on their first appearing, and the dangers to which they are afterwards liable, each of which we have clearly pointed out, there can be but little probability of success.

Regular Gardeners, well informed in these particulars, are to be considered valuable acquisitions, and merit all reasonable indulgence; and every candid person of this denomination, may receive much beneficial information, especially on the business of TREE SEEDS; which alone, will amply repay his employer for the purchase of so complete and direct a GUIDE to NURSERY GARDENING; and the common Gardener, diligently attentive to its directions, may speedily be rendered fully competent to the business.

The minute attention, arduous labour, great length of time, and heavy expense attendant on these actual researches during a period of several successive seasons, in order to be able to afford the most accurate instructions for collecting the seeds of Trees, Shrubs and Plants, in the fullest perfection; precludes the possibility of offering the work at the usual price of a publication, or other than a Collocation of discoveries and communications, most useful, interesting, and important, to planters at large; but more especially to Agricultural Planters.

As the sale of this production will probably be confined to the NOBILITY and GENTRY of landed property, which will necessarily render the number of purchasers inconsiderable; and as the entire expense of purchase will be amply repaid by a saving on seeds alone, collected in a single season, where only tolerable quantities are required; it is presumed, that the present price will not prove repugnant to the demand.

The directions offered, will be found to contain accurate instructions for collecting in the greatest perfection, seeds of FOREST TREES, and other hardy, ornamental, evergreen, and deciduous TREES, SHRUBS and PLANTS; many of which, not generally known to produce sound growing seeds, will, in favorable seasons, afford them freely and abundantly in England; which may be found more or less in every County, and in some nearly all: wherein are pointed out, the particular situations in which they are usually found growing; their time of ripening; sign of maturity; cheapest mode of gathering; most expeditious and effectual process of cleansing; together with the best method of preserving them until the season of sowing:

by which, they may be obtained at an incalculably less expense than by bought seeds, and without the liability of adulteration. In which are also accurately described, *the most eligible situation; suitable exposure; and favorable soils for a SEEDLING NURSERY; with necessary directions for preparing the most genial composts, where the natural soil is unfriendly; forming the seed beds; the proper time and manner of sowing the seeds; together with the requisite management of the young plants, describing the various accidents to which they are peculiarly exposed in their infant state; with the most certain preventives of injury; by which, seedling productions of small, tender, or delicate growth, may be more permanently and effectually secured from scorching sun, the common annoyance of such young plants; and preserved from the depredations of worms, snails and other vermin, than by common practice; with the most eligible mode of transplanting, and their after treatment preparatory to final transplantation.*

By which, the most abundant crops of seedling plants of various descriptions, may be annually raised at a trifling expense; and in a few years, immense quantities of young trees of different sorts and sizes, propagated at an infinitely less cost, than in the most extensive PUBLIC NURSERIES, where recourse is had to bought seeds.

## REMARKS ON CURING TREE SEEDS.

IN the business of collecting Tree Seeds, nothing is to be considered of greater importance, than an immediate and accurate attention to these seeds of almost every description, on their being first gathered, and for some succeeding days ; especially such as are light or ~~heavy~~ soft ; as Birch, Elm, Poplar, Willow, Mountain Ash, &c. that we conceive it momentous strictly to enjoin the necessity of guarding against their being injured by heat or sweat, to which they are more peculiarly liable when in any degree moist or green, which in some cases unavoidably occurs. And it will frequently happen, that in some peculiar kinds, as the above-mentioned, on being suffered to remain in quantities only one whole night in a sack, or other close package, however dry they may have been collected, will be in the extremest danger of being totally destroyed by sweat or heat, and thus irrecoverably lost. And as these seeds of every description are more or less liable to such injury, it ought to be an inviolable rule, on the evening of each day in which they have been gathered, to put out of the sacks, or whatever other article in which they may have been collected, *all seeds*, as the surest mean to avoid an inconvenience by which immense quantities of valuable Tree Seeds are frequently and unex-

pectedly lost. And the attention generally recommended, under the respective articles for their preservation, during their continuance in the store-room or seed repository, will be equally necessary; recollecting, that the more light and unsubstantial the seeds, the greater will be the danger of their growing property being thus destroyed.

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*Peculiar Advantages of collecting largely of Tree Seeds in the most favorable and plentiful Seasons.*

IN many instances, the seeds of such trees as are not always free to ripen in this country, especially in unfavourable seasons, will be found fully to retain their growing quality until the second Spring, on being properly matured and preserved; as in Fir, Pine, Alder, &c. the seeds of which may be got out to greater advantage, and with much less trouble and inconvenience, by spreading them in the sun thinly on cloths, on the weather becoming warm, the summer months after gathering, as June, July or August; recollecting, that the more warm and the longer the continuance of sun shining on them, the more freely they will expand and discharge their seeds; which being thus obtained perfectly dry, will be in the fittest state for preserving in bags or boxes, immediately after being sifted out of the cones, which process will be found the least trouble imaginable; but it will tend to preserve the vegetative property

of the seeds, if the dry chaff or refuse, is sifted out therewith, which will easily be obtained distinct from the scales of the cones, be reserved together with the seeds : This will be found the most easy and best method to obtain the seeds of most trees and shrubs which are coniferous or producing cones; whose seeds are frequently most difficult to obtain, and will generally be found to grow a second season; and peculiarly deserves to be pursued where the process of getting out seeds by breaking the cones, cannot be readily practised: but where it is easy and convenient to break them at any period, the seeds may be preserved in the cones until the season of sowing, taking care that they be laid secure from rats, mice, &c. to which the sweetness of many such seeds will frequently prove a powerful attractive; especially in severest weather. But preserving these seeds until a second season, should only be attempted after a warm and dry summer; when the crops are plentiful, the cones of full size, and the seeds large, abundant and perfectly matured; from which the advantages will be found very considerable, whether they are collected for sowing or for sale a second Season, as such seeds may, with the fullest confidence, be recommended or sown. Where they are intended for sale, dress them over only once previous to their being sent off, which will add to their good appearance. Where the cones are laid by for summer cleansing, and large quantities are required, much room will be necessary, but which, in the

Summer season, is not generally required; and as this process is recommended for Scotch, Spruce, and Larch Fir, Cluster and Wild Pine, producing their seeds in the most close cones, by which the annual supply will be more regular, such room may probably be very conveniently spared or found in most country situations. The method of doing this will be found familiarly described under the articles of Larch and Norway Spruce Fir, and may be applied to almost all coniferous Trees and Shrubs.

**HARDY TREES**  
**OF**  
**LARGE AND LOFTY GROWTH;**  
**CHIEFLY CULTIVATED AS**  
***Forest and Timber Trees;***  
**AND**  
**IN SOME INSTANCES FOR ORNAMENT.**

## SEED REPOSITORY.

*Where large quantities of Tree Seeds are annually required, in order to their being cured and preserved in the most perfect condition, a Store Room or Seed Repository will be necessary; by which is designed, not the expense of erecting any such edifice for this peculiar purpose, but appropriating thereto any conveniently formed building; advantageously situated in the most open airy and dry situations—the more effectually to preserve the seeds from moisture and damp; affording sufficient room to remove and turn over the various seeds as directed, to secure them from heat or sweat, an accident extremely common to newly-gathered seeds; which also require to be laid secure from Rats, Mice, &c. generally voracious of them, and easy of access to Cats that they may destroy such vermin.*



## **ALDER TREE, COMMON; *BETULA-ALNUS*.**

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—Of érect growth; rises from thirty to forty feet high, having purplish branches, adorned with roundish, glutinous, deep-green leaves. Flowers in July, producing many cylindrical catkins suspended in bunches, which afford numerous small, pale-brown, flat seeds in favorable seasons.

**SEED-BEARING TREES**—Will be found in largest quantities in boggy and marshy situations; also by the side of rivers, brooks and other rivulets of water. Are to be met with in most counties in England, but in the greatest abundance Northward. They sometimes diversify large plantations, and may be met with in woods, where the soil is cool and moist.

**TIME OF RIPENING**—In November, these seeds will commonly be found ready for gathering; observing that trees growing on dry soils, and in open exposures, will afford ripe seeds two or three weeks sooner, than those in moist and shady situations.

**SIGN OF MATURITY**—Soon as the amentums containing these seeds, assume a brownish complexion, and the scales become hard and dry, they will be fit to gather; which must be done before the cones open or expand; or at latest

when they begin to crack : or there will be great danger of the seeds shedding out.

**MODE OF GATHERING**—The most convenient trees from which to collect these seeds, are Pollards or Dodrils ; from their having been headed down. Such being of humbler growth, the bunches may be more readily obtained by pulling down the lower branches, with long wood-hooks ; and where the trees are of convenient growth, one man will be able to hold down the boughs bearing seeds, sufficient to employ four or more boys or girls to pull off the bunches of seeds entire ; putting them into bags, or aprons, tied before each. Where trees are more tall, recourse must be had to ladders, or climbing into them with shorter hooks ; and where the Cones have not begun to expand, the branches may be thrown to the ground, picked up by children beneath, and put into whole sacks in order to their being taken away.

**SEEDS CURING**—Immediately after gathering, convey them to an open airy room ; but on no account suffer them to remain one night in the sacks ; as there would be great danger of their being spoiled by heat or sweat. Spread them evenly on the floor, which must be perfectly dry, three or four inches thick, turning them over regularly each other day with a close-tined fork, during two or three weeks ; when they may be laid more thickly, in order to be beaten out and cleansed, on the weather being favorably dry, or frosty.

**CLEANSING SEEDS**—When they have been gathered fully ripe, and their cones have become properly dried, the greater part of the strongest seeds may then be expected to shell out; and if the entire heap or parcel, are sifted over with a common riddle or other sieve of equal make, the best seeds will be preserved from injury by thrashing; after which, beat them out with a common flail on a sound boarden floor; when the remainder of the seeds may be readily separated from the refuse by a sieve of the above description; and the dust and chaff taken out by a sieve of a smaller size, but sufficiently fine to retain the seeds; or regularly running them down before a gentle and steady wind.

**PRESERVING SEEDS**—On being first thrashed out, these Seeds are not to be considered fit for bagging; in which case they would be subject to damp and mould, by which their growing property would be materially affected: it is therefore necessary, that they be spread evenly on the dry floor of an airy room, about two inches thick, to remain a week or ten days, running between them the teeth of a fine rake every day: when they will be found in proper condition to put into bags or boxes; placing them in any dry situation secure from rats and mice, until the season of sowing.

**SEASON AND METHOD OF SOWING**—The Alder being a native of cool soils and moist situations, its seeds require to be sown in fine and soft bog earth, inclining to white silvery grit, or brownish sand.

January, or early in February, is the most favorable season ; as on being later sown, and the spring becoming dry, these light and small seeds will not have sufficient strength to germinate. With as fine a rake as can be procured, make even the surface of the bed, about two inches below the level of the ground, discarding all stones and lumps of heavy soil ; then sow the seeds somewhat plentifully thick, and in proportion to their apparent growing quality, which may be nearly determined by previously bruising or breaking a few of the seeds ; and with the same soil, and by a fine sieve, cover them evenly a quarter of an inch deep, throughout the bed ; making smooth the surface, without disturbing the seeds.

In May, or immediately on the weather becoming warm, apply the wattled hurdle to the South side of the bed, and near as possible, without injury by treading on the newly sown ground, in order to keep cool the soil, and defend the young plants from heat of the sun. About Midsummer, when the crop will be established, the screen or wattled hurdle may be taken away.

**TRANSPLANTING**—The best mode of Transplantation that can possibly be adopted for seedling trees, especially those making small wood and of moderate growth, is that of bedding them out ; by which the soil of the fresh-dug ground will not only better apply to, but remain more light about the roots of the young plants, than where they are planted by dibbles. In all cases of deciduous

trees, Autumn, or soon as the leaf has fallen, will be found the best season for this business, as the falling rains during the dead winter months will sufficiently settle the earth to the young plants, as to secure them from injury by drought in the following spring and summer. This work will be most cheaply and conveniently performed when the seedlings are from four to six inches in height, whether of one or two years growth; planting them more thickly than in rows. In taking up the young plants, it will be necessary that they are drawn with the whole of their fibres; and where the perpendicular roots are of inconvenient length to plant, reduce them one-third, or more if necessary, by cutting them with a well prepared sharp knife, in order to their being more readily planted.

On the plants being in readiness, prepare the ground on which to plant them in the following manner:—

Mark out the beds for their reception, four feet wide, by a line on each side, evenly chopping down the earth with a clean spade, within the lines, two inches deep; then dig out the soil regularly half-spit deep, close to each line within, laying the same equally on the outside each line placed to mark out the bed; wherewith, and at the same time forming one regular embankment four or six inches in height throughout: the better to retain all falling rains through the winter, spring and summer seasons.

This done, make even the bed within the lines, by throwing the surface of the middle towards the sides, and proceed to the business of planting, at either end ; begin the work by throwing out a small trench, as in common digging ; marking the ends of the bed, as has before been done on the sides. On digging even the ground about six inches from the end of the bed, and on being provided with two sticks, each nine inches long, measure off that distance on each side ; when mark out or impress a line, by laying a straight staff four feet in length, directly across the bed, lightly pressing it on the new-dug ground, to form the straight line, by which to plant the first row of young trees : then, with a clean spade chop away the earth evenly as possible, and in the smallest degree aslope, three to four inches deep or sufficient to receive the plants ; against which to place them nearly erect, and somewhat deeper in the ground than before, not singly, but in proportion of about eight or nine plants within the space of six inches, being first somewhat regularly spread between the thumb and fingers of each hand ; when apply both hands together, in disposing of the plants, beginning on either side ; and on the bed being thus planted entirely across, return the loose soil which has been thrown back, therewith earthing the roots regularly about half their length ; and proceed to dig the bed little more than nine inches to receive other Plants, by marking across, chopping rather

aslope the ground, and planting the line as before: clearing away all weeds and stones until the bed is completed. Observe on no account to press the earth to the young plants in the smallest degree, that it remain light and loose to admit the free expansion of their fine and tender fibres in the Spring, in order to their liberal growth throughout the summer. In placing the plants in the line chopped out to receive them, it will be impracticable to plant them with facility and dispatch, if the bank or earth at the back is formed erect, in which case they will be liable to fall aside; but must not be cut aslope in too great a degree, in order to the plants standing upright. Such mode of planting may at first appear tedious, but a little practice will convince the planter, that with the assistance of an active boy, methodically to hand a regular supply of plants, as they may be required, some thousands may be thus planted in a fine day; and with much greater expedition than by placing them singly: their not being at very exact distances or immediately erect, will not affect their growth. On having been bedded out two years, they will be fit to transplant into nursery rows; or for transplantation where larger trees are not required. By remaining two years in the seed bed, the crop not being abundantly thick, may be transplanted as young Ash Trees of that age.

## **ASH, COMMON; *FRAXINUS EXCELSIOR*.**

**INDIGENOUS TO BRITAIN.**

**DESCRIPTION**—With a large upright grey stem, growing sixty to seventy feet high; branching into a regular head, with large compound leaves. Flowers in April or May, producing large bunches of spear-shaped compressed seeds, commonly called Ash-keys; which ripen sufficiently and plentifully almost every year.

**SEED-BEARING TREES**—Are to be found abundantly in almost every county throughout England.

**TIME OF RIPENING**—In November, or the early part of December, they will be in a proper state to collect in all situations.

**SIGN OF MATURITY**—When fully ripe, these seeds will have attained a pale or nut-brown complexion.

**MODE OF GATHERING**—This business must be effected before the rough winds begin to separate them from the bunches. They will be most easily collected from Pollard Trees, having been lopped before-time; or recourse must be had to the lower branches of taller trees; either by ladders, or with long hooks, pulling them down. These seeds being generally produced at the extremities of the branches, the trees will sustain but little injury by breaking them off just below the bunches;



and on being thrown to the ground, may be afterwards readily collected together.

**SEEDS CURING**—Immediately as they are taken from the trees, lay them five or six inches thick, in any dry or airy situation, turning them over twice or thrice a week.

**CLEANSING SEEDS**—Strip the entire bunches from the small boughs, to which they are attached.

**PRESERVING SEEDS**—The best method of preserving Ash-keys, is to intermix with them an equal quantity of soft, loose, and inadhesive, light soil, without stones, before they are buried; when deposit them in a situation secure from wet; after which, they will be found in a due state for sowing the second spring. No vermin will destroy or injure these seeds.

**SEASON AND METHOD OF SOWING**—Ash-keys may be sown in any unbinding soil, of good quality. Early in February is the most favourable time. If they are not sown before the germ or sprout of the seed appears, there will be great danger of the chit, proceeding from the seeds, breaking off; by which each will be destroyed, and the growth of other seeds uninjured, retarded. Rake even the surface of the bed, lying two inches below the level of the common ground, when sow the seeds together with the soil in which they have been intermixed moderately thick; guarding against either extreme. With a part of the soil in each pathway, cover the seeds a little more

than an inch deep. In performing this, with a spade of convenient size, take of the soil thrown into each pathway at the time of forming the beds, and of that immediately laying more distant from the bed, or on the outer side of the ridge or embankment, designed to inclose the ground on which the seeds are sown, in small but equal quantities, on the point of the spade; laying it regularly on the seeds throughout the bed; when, by spreading the same evenly, they will be covered in one uniform depth. In a week or two after sowing, on a dry day, rake even the surface of the beds, drawing off all stones and lumps of hard soil, which might otherwise obstruct the progress of the young plants. Late, or spring frost, is the only accident to which they are liable; and from their otherwise extreme hardiness, will not require protection from the sun by shade,

**TRANSPLANTING**—Seedling plants of this and some other hardy trees of large and free growth, affording roots abundantly fibrous, will not require to be bedded; but yearling plants, where the seeds have been sown moderately thick on good soil, and after a favourable season, will be of sufficient growth to transplant, by dibbles, into nursery rows. When it can be practised, Autumn is the best time for this business, as on being set out before Winter, the falling rains of that season will closely settle the earth to their roots; by which, cold and cutting winds will be excluded, and the young plants better secured from the drought of a

hot summer ; performing this work in the following manner :—

In digging up the young plants, care is requisite that they rise with the whole of their roots; and as seedling plants one year old, especially such as are of strong growth, are commonly productive of a straight, downright, or tap root, it will be necessary to reduce all such roots by cutting away with a sharp pruning knife, about one-third of the same; by which they will be planted with much greater facility, and the young trees be far more productive of roots. Immediately on the ground being prepared by deep digging, and clearing off all roots of weeds, and before it becomes wet, as it would be difficult to plant, mark out the rows on each side, and place the lines across at equal distances, one foot apart; when, with finely pointed dibbles, and on the same side each line, plant them somewhat deeper than before, six inches apart, in the rows. This work will be expedited, where a boy or girl are employed to lay down the seedlings at proper distances before the planter. In two or three years, they will be fit for final transplantation; when, if required, one half the crop may remain on the ground, by taking away each other row.

In many situations, after two years growth on the seed beds, sufficient plants of strong growing trees, as Ash, Chesnut, Oak, Sycamore, Walnut, &c. will be afforded to transplant into nursery rows; one foot and a half distant, and nine or

twelve inches apart in the rows ; their roots having then become large, this business can only be performed by spades. On digging up such two-year-old plants, it will be necessary to open the ground widely and deeply, in order to obtain all the roots possible ; which will require to be reduced by pruning, carefully cutting away all such as are bruised, in order to their being more readily placed in the holes formed to receive them, and which may be readily and advantageously effected in the following manner:—Immediately on the ground being dug, a full spit deep, plant the trees ; as on the surface becoming wet, it would be difficult to proceed, from the soil adhering to the spade and the feet of the persons employed.

Being provided with an active spademan to dig out the holes, and a stout boy or lad to hold the plants, having first marked out the rows on each side, place the line across ; and at either end dig out a hole of convenient depth and breadth to receive the first plant, throwing away the earth ; when place it close to the line as possible, holding it erect, when cover the root with soil dug out nine inches distant, to form a hole to receive the second plant ; the holder lightly pressing the soil to the root with his foot ; and thus continue the work until the whole is completed : where large quantities are required to be planted in a short space of time, several men and boys may be employed in proportion to the size of the ground.

## **ASH; MOUNTAIN; *SORBUS AUCUPARIA*.**

***INDIGENOUS TO BRITAIN.***

**DESCRIPTION**—Grows with a stem and regular branching head, twenty to thirty feet high; with smooth, greyish-brown bark; and pinnated leaves. Flowers in April or May; affording large clusters of brilliant scarlet berries; the crop of which seldom fails, and always ripens.

**SEED-BEARING TREES**—Are commonly to be found in ornamental plantations of large hardy trees, in, or contiguous to parks, or pleasure grounds. In some parts of England, particularly Northward, they are common inhabitants of woods, &c.

**TIME OF RIPENING**—About the commencement of wheat harvest, or middle of August, in Southern counties, these seeds will be ripe in warm seasons, and in the more Northern, in September;

**SIGN OF MATURITY**—When fully ripe, these berries will have acquired a bright scarlet colour: Notwithstanding their extreme asperity of flavor; in many situations, they are immediately liable to be devoured by thrushes and blackbirds, which greedily attack them, and destroy the whole crop in a few days.

**MODE OF GATHERING**—These trees being of somewhat humble growth, and the bunches chiefly growing at the extremities of the branches, will

easily be collected by pulling down the lower ones with long hooks ; and boys climbing into the upper parts of the trees with weed or other short and sharp hooks ; breaking or cutting off the berries, at bottom of the bunches, and throwing them to the ground ; when they may be put into sacks or baskets.

**CURING SEEDS**—Immediately on conveying them away, turn them out of the sacks ; laying them in the most airy situations possible, about six inches thick on the floor. When the entire quantity is collected together, the juice must be wholly squeezed out, by a tallow chandler's, or other press, in a hair-bag ; the seeds and husks be taken out together, and laid about two inches thick on a dry floor in a situation as airy as possible stirring the whole two or three times a day, breaking all lumps that they may thus lay as lightly as possible, until it become dry : or, they will be more quickly dried, by spreading them not more than an inch thick, on whole cloths laid in the full sun throughout the day ; frequently and lightly stirring or turning them over until they are perfectly dry.

**PRESERVING SEEDS**—As they require to be laid by one whole season, on the seeds and husks becoming tolerably dry, intermix therewith an equal quantity of white sand, or finely-sifted coal-cinder dust ; and bury them in the earth in a dry situation, secure from inundation or standing wet, by which the kernels might be destroyed, until the

season of sowing; covering the heap with common soil, about a foot thick.

**SEASON AND METHOD OF SOWING**—Like the seeds of all other trees which require to be buried in soil one whole season, these must be timely sown, from their early propensity to vegetation. By performing this business in January, or early in February, they will be secure from the danger of sprouting before they are sown.

These Seeds being very small, are to be sown only on soil that is light and soft, or they will not have sufficient strength to make their way through the surface; that where the natural soil is unfriendly, apply the compost recommended for Fir-Tree seeds; in which, sow them, together with the soil in which they have been preserved, as has been directed for Alder Seed; defending them from the sun, by the same method.

On these seeds being sown the first spring after gathering, a few young plants will rise, but far greater part the second season, when the surface of the ground is frequently too hard and confined to admit of their breaking through.

**TRANSPLANTING**—In the season and manner of Common Alder.

## BEECH, COMMON; *FAGUS SYLVATICA*!

INDIGENOUS TO BRITAIN.

**DESCRIPTION**—With an upright smooth trunk, of very large circumference; attaining the height of sixty or seventy feet: garnished with shining, oval leaves. Blossoms in April or May, producing angle-shaped seeds, enclosed in hirsute pods of dusky green, which ripen freely, except in cold or extreme wet seasons, from which their seeds are subject to immaturity and decay.

**SEED-BEARING TREES**—Are generally to be found in ancient parks, in the interior of England; where they have been planted for the benefit of deer; which, in some cases, renders it difficult to obtain their seeds from such situations; but in some counties, southward, are woods of these trees, where the falling fruit is devoted to the feeding of swine.

In large plantations, more or less of these trees are to be found; but single trees, or those planted in vistas, will always be most convenient from which to collect their seeds; especially, where they are least exposed to winds.

**TIME OF RIPENING**—Late in September, or early in October these seeds, commonly called Beech-mast, generally ripen as the season may prove wet or dry.

**SIGN OF MATURITY**—When the capsules containing these seeds begin to expand, and the seeds



fall to the ground, they will be fully ripe to gather. It requires to be recollected, that where the crop wholly falls to the ground, there will be great danger of the seeds being devoured by deer, swine, or sheep; and in dry sunny weather, this will frequently happen in a day or two.

**MODE OF GATHERING**—Prior to collecting them, great care must be taken that all long grass, weeds, stones and rubbish of every description, be entirely cleared away from beneath the trees, and the surface of the ground made even as possible, in order that the seeds be more readily gathered together, by sweeping with stunted brooms, or such as have been in use. In all situations of these seeds growing, where they are exposed to horses, cows, sheep, or swine in common inclosures; or to deer in parks; it will be necessary to protect them a few days prior to the nuts falling from the trees; from the former, sheep-trays or hurdles, placed round the full circumference of the Trees, will prove sufficient for their preservation: but to secure them from the deer, nothing will so well succeed as sewing off the ground; which, during a few days, will keep them entirely away. This may be sometimes practised in such part of the park as is least frequented by deer, and where several trees may with little trouble at once be included, especially in the exterior of such park. On the weather proving sunny and warm, or frosty at that juncture, the most abundant crop will fall in two or three days.

When the seeds are down, provide a sufficient number of men, preferring the afternoon or evening of the day when the ground is commonly most dry, provided with broadest worn stable beesoms; and commencesweeping the thickest of the seeds, towards the stem of the trees into heaps; when they must be gathered together, and put into sacks.

**CURING SEEDS**—Beech-mast requires to be laid not more than four to five inches thick; turning it over once or twice each day, for a month, to prevent mould or decay. Such as are collected wet, require to be sown immediately. Rats and mice will greedily devour them in all situations.

**SEASON AND METHOD OF SOWING**—Beech-mast, may be sown from the beginning of February, to the first week of March, inclusive; this being of later growth than most other hardy trees. The young plants being very susceptible of late frosts in the spring, theseeds require to be sown later: and where crops happen to be thus entirely destroyed, a second sowing may be successfully performed, even at the latter end of March. No soil is more favorable than a rich light sandy loam: sow them as Ash-keys, affording them the same treatment throughout the summer, and during their continuance in the seed bed; where no screen will be necessary to defend them from the sun.

**TRANSPLANTING**—In the season and manner of Common Alder.

## BIRCH, COMMON; *BETULA ALBA*.

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—Grows from thirty to forty feet high, having an erect trunk, covered with white bark; the branches of moderate growth and furnished with small oval, serrated leaves. Flowers in July, producing numerous very small and flat whitish seeds, in amentums or catkins, about half an inch in length. These seeds commonly ripen plentifully, even in the North; but in seasons wanting sun, their maturity is sometimes defective, even in the warmest parts of England.

**SEED-BEARING TREES**—Are generally to be found, intermixed with other hardy trees in plantations of magnitude and extent; but will be met with in greatest abundance on rocky hills and poor sandy barren soils, particularly Northward, where they are cultivated for the purpose of cutting into brooms. In Derbyshire and other counties, are extensive woods of these trees on lean hungry soils, consisting of little other timber; but those of humble growth are fittest from which to collect seeds.

**TIME OF RIPENING**—October is generally a favourable month for collecting them in the greatest perfection, or at latest, soon as the leaves change their colour; when the seeds may be more readily obtained. In cold and wet seasons they will re-

main on the trees until November, when they are to be considered of little value.

**SIGN OF MATURITY**—When the catkins, containing these seeds, assume a brownish complexion, they will require to be gathered ; for if suffered to remain on the trees until they are changed to a dark brown colour, there will be great danger of the seeds disseminating by the high winds, usually prevalent in the Autumn season.

**MODE OF GATHERING**—On the leaves having fallen from off the trees, it will be easy to obtain these seeds, by pulling down the lower branches with long wood hooks, stripping them off by hand ; and where a small proportion of leaves remaining on the trees, come away with the seeds, they may readily be separated by a coarse sieve, immediately after gathering ; but may be more abundantly and expeditiously collected, where the small boughs having most seeds, are allowed to be cut away with knives, by stout boys or young men climbing into the trees, throwing the branches on whole mats or cloths laid round each tree on the ground ; where children may strip off the seeds by hand.

**CURING SEEDS**—Shoot them down on the floor immediately, laying them about two inches thick ; stir the whole twice every day, for a month, or until it become fully dry ; when all must be riddled by a proper sieve, sufficient to separate the clean seeds from the refuse, by stopping the stalks and leaves ; and the seed thus sifted out, will re-

quire to be laid separate, and the parcel of refuse be thrashed over at some future convenient day to obtain the seeds it may contain; when, put all the seeds together.

**CLEANSING SEEDS**—On being laid in a proper situation, by frequent stirrings the seeds will be wholly separated from the stalks in a few days; when this is observed, riddle them over with a sieve only sufficiently fine to stop the leaves and stalks, and the seeds will be clean.

**SEASON AND METHOD OF SOWING**—These seeds, from their extreme lightness, require to be sown soon as the ground can possibly be prepared, after the Winter frosts. The month of January is to be preferred to all others for this business, if it can then be effected; as the seeds, by late sowing and being kept too long out of the ground, will soon become dry, and thereby their growing property be exhausted. The soil in which these small and unsubstantial seeds are sown, must be soft in the extreme; and as soils sufficiently light are not general, the best compost of which to form the beds, will be that of soft bog earth, or black and rotten-tree soil of any description, finely sifted to take out the coarser parts, with an equal quantity of the finest white sand which can be procured, *thoroughly incorporated*.

In this compost, sow the seeds *very thickly*, quite covering the ground after the surface has been made completely even; then earth them over as thinly as possible with the same soil, finely sifted

upon them ; after which, cover them closely down with drawn, or evenly-laid straw, to preserve the young plants from the cold and harsh cutting winds of Spring, until they appear strong above ground ; when the straw must be entirely taken away. As the Spring advances and strength of the sun increases, about the latter end of April or May, apply the wattled hurdle, as directed in Alder Tree ; by which precaution, ample crops may annually be obtained, on the seeds being sufficiently matured.

**TRANSPLANTING**—In the season and manner of Common Alder.

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## CEDAR OF LEBANON ; *PINUS CEDRUS*.

*NATIVE OF MOUNT LIBANUS.*

**DESCRIPTION**—Hath an upright trunk, which rises to considerable height and magnitude, remarkable for its widely extending horizontal branches all round ; closely garnished with narrow, acute, stiff leaves, in bunches, from the same point ; produces its blossoms in May, which are succeeded by largish and thick close cones ; affording sufficiently ripe seeds, in warm and favorable seasons.

**SEED-BEARING TREES**—Ancient parks, and ornamental plantations of long standing, contiguous

to mansions of antiquity, are the more probable situations in which they may be found.

**TIME OF RIPENING**—In December or January, the seeds of this tree will have attained their full size and growth.

**SIGN OF MATURITY**—When the scales of the cones have become hard and dry, they may be gathered ; but the seeds will be much improved in their substance, by remaining on the trees throughout the winter, and especially by the drying winds of March in the spring.

**MODE OF GATHERING**—These cones being chiefly produced towards the tops of the trees, and near to the stem, they will be best obtained by stout boys climbing into them, with sharp weed-hooks ; cutting the cones clean away, that they fall to the ground, as directed in gathering Balm-of-Gilead Fir. These cones, which are frequently small in cold and wet summers wanting sun, will be found plentiful on the trees in productive seasons ; and may readily be collected in tolerable quantities, where the trees are large.

**CURING SEEDS**—Lay the cones thinly in the most dry and airy situation, until the seeds are required to be got out.

**CLEANSING SEEDS**—From the extreme hardness of these cones, they will be found more difficult to break clean, without injuring the seeds, than any other. The method we recommend is, with a gimblet of moderate size, first to attempt to bore the centre of the cones, or stalk to which the scales are

attached ; after which, a larger may be applied : then, by fixing the cones firmly in a vice, a small augur of convenient size, (as used by carpenters,) and one that is worn, may be used nearly to bore through the centre ; in which situation, force a piece of roundish iron through the middle with a sufficient hammer ; when the cone will split and the seeds may be picked out : but care is requisite that the bore be not too large, or wide, to extend to the seeds enclosed, as the slightest bruise will spoil them.

**CLEANSING SEEDS**—As the quantity of these seeds will seldom be considerable, separately picking them out is the best method we know.

**PRESERVING SEEDS**—They will be best kept in bags, placed in dry situations, and secure from vermin.

**SEASON AND METHOD OF SOWING**—As these seeds are seldom obtained in very considerable quantities, it will be generally advantageous to sow them in large pots, or others of more convenient size ; in which case, they may be placed in any particular situation. It will be necessary that the pots first stand in a duly east aspect, where they can have the advantage of all early and later morning sun ; but when they are sown in situations where birds of the granivorous tribes abound, as the chaffinch, greenfinch and sparrow, they will require to be narrowly watched ; or the whole crop will be entirely plucked up on their earliest appearance.

The best soil in which to sow these seeds, is that



formed of black and rotten tree soil collected from decayed trees, and any other than willow finely sifted, with an equal proportion of softest white sand ; which must be thoroughly incorporated, by repeated and hard rubbings between the hands ; when it will be fit for use. Fill each pot within half an inch of the surface making even the soil, and deposit the seeds moderately thick at equal distances ; when evenly fill the pot with the same light and soft compost, affording a moderate watering by gentle sprinkling with the hand, sufficient to soak the seeds. April is the most favorable month.

In such light and dry soil, frequent copious waterings, by sprinkling, will be necessary ; which must always be afforded on the least apparent want of moisture.

The seeds of this tree on being fully ripe and preserved in the cones unbroken, will remain sound three or four years ; but on being long exposed to air, will become dried and shrivelled, losing their growing quality ; that in warm and plentiful seasons it will be advantageous to collect more largely.

**TRANSPLANTING**—March or April are proper months. On the young plants becoming four to six inches in height, whether one or two years old, transplant them round close to the rim of deep pots of convenient size, two inches apart. The pots being furnished with soil more inclined to light loam than that in which they have been sown, and of such depth as to admit of receiving the whole of their roots, except in shortening the tap root if necessary, fill the

pot with other favorable soil, watering and placing them in the shade two or three weeks ; when after which, introduce them to the sun by degrees. In remaining two years in these pots, at the same season of the year, transplant them singly into others, with all such earth as may attach to their roots on being turned out.

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### **CEDAR, RED; *JUNIPERUS VIRGINIANA*.**

***NATIVE OF NORTH AMERICA.***

**DESCRIPTION**—Grows to the height of thirty and forty feet ; branching from the bottom to the top, in a cone like form, having small leaves, by threes, closely attached at their base, and dioecious. Flowers, in May and June ; which are succeeded by small, round, reddish berries ; in warm seasons ripening freely and oftentimes very plentifully.

**SEED-BEARING TREES**—Are somewhat general in ornamental plantations of long standing, especially contiguous to family seats and mansions, which they have been designed to beautify.

**TIME OF RIPENING**—These berries may be gathered on a dry day, in December, or January.

**SIGN OF MATURITY**—When fully ripe, the berries will be of a reddish brown complexion, and incline to fall off ; but the seeds will be much improved by

remaining on the trees until the spring, where they can be secured from the ravages of birds ; which will be best effected by spreading a fine net over the trees.

**MODE OF GATHERING**—They will be most easily obtained by beating them off the trees, with thin light poles on entire mats or cloths, where it can be practised ; as being small, they will be tedious to pick off, especially where the quantity is considerable.

**CURING SEEDS**—Lay them not more than two inches thick, where there is much air and are no mice ; stirring them once a day until the whole are dry.

**PRESERVING SEEDS**—Intermix with the berries an equal quantity of finest dry white sand, or cole cinder dust, finely sifted ; burying the whole in the common ground, or large garden pots.

**SEASON AND METHOD OF SOWING**—Where the natural soil is not light and soft, inclining to sand, as that described and recommended in the propagation of seedling firs of general description, the compost recommended for Cedar of Lebanon, will also be found excellent in the present instance ; especially where pots are employed, and the quantity of seeds is inconsiderable. In preparing the seeds for sowing, on their being taken out of the ground with the soil in which they have been buried, rub hard the whole between the hands, to separate the seeds, that they be more regularly sown ; when by either method, with or without pots, strew them

thickly over the surface, and cover them with the same light soil, not more than a quarter-inch thick, treating those sown in pots, as *Cedrus Libanus*; and those on beds, as Firs in general.

**TRANSPLANTING**—The young plants will not be of sufficient size to transplant of less than two years growth: in bedding out which, prefer September, on that month proving showery and moist, in which case they will form young roots before winter; and thereby be securely established against injury from a dry spring or summer. Plant them in beds in the manner of Balm-of-Gilead Firs, one inch a part, or those into pots, in March or April, placing them at the same distance round the rim and treating them as Cedar of Lebanon.

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## CEDAR, WHITE; *CUPRESSUS THYOIDES*.

*NATIVE OF NORTH AMERICA.*

**DESCRIPTION**—Of humbler growth than others of the Cedar or Cypress tribes, seldom attaining more than twenty-five feet in height; having two-edged branches, ornamented with flat ever-green leaves, imbricated, as in Arbor Vitæ Flowers in April, and produces small blueish cones about the size of common juniper berries; freely affording sound, ripe, small, flat seeds, in favorable seasons.

**SEED-BEARING TREES**—Ornamental plantations of less lofty growth, but of long standing, are most productive of favorable trees of this description.

**TIME OF RIPENING**—December and January.

**SIGN OF MATURITY**—The cones on becoming ripe, will change to a brownish color, still adhering to the trees; but the seeds will be much improved, by hanging thereon throughout the winter, collecting them in February or March, before the cones expand on the weather becoming warm.

**MODE OF GATHERING**—Strip off the cones by drawing the young branches through the hand, or pick them off singly, as may be most convenient; it will be easy to pull down the upper branches by short ladders and hooks. The cones being firmly attached, will not readily be beat off the trees, as the berries of Red Cedar.

**CURING SEEDS**—Lay them very thin, in a dry situation.

**CLEANSING SEEDS**—Soon after the Spring gathering as the weather becomes sunny and warm, lay out the cones on a cloth, on a fine and sunny day or two, when they will become sufficiently dry to thrash; and may be beat out of the cones in a bag, or otherwise, by a common flail; and the seeds may be obtained from the refuse by dressing with fine sieves and steady wind.

**SEASON AND METHOD OF SOWING**—Sow them as has been directed, for the seeds of Red Cedar; but in the same season in which they have been gathered.

**TRANSPLANTING**—On the plants being two years old, perform this business in the season and manner pointed out for Virginian Red Cedar.

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## **CHESNUT, HORSE; *ÆSCULUS-HIPPO-CASTANUM*.**

**NATIVE OF ASIA.**

**DESCRIPTION**—Of somewhat formal growth, near fifty-feet high, with regular branches; hath seven-lobed digitate leaves; and flowers in May; producing prickly capsules, which contain the seeds, each affording one or more nuts of reddish-brown colour, which always ripen, and commonly in great abundance.

**SEED-BEARING TREES**—Are to be found oftentimes in great abundance, growing in old parks, and plantations. In some situations, avenues and vistas are formed of these trees; and in many woods they abound. They are of almost universal growth throughout the kingdom.

**TIME OF RIPENING**—Early in, or by the middle of October, the seeds will pretty generally fall on the Autumn being fine and dry; and especially if that season proves windy.

**SIGN OF MATURITY**—On these nuts becoming

sufficiently ripe to fall from the trees, the capsules containing them, will become brown and expand; and immediately after the first frost, the crop will be wholly down.

**MODE OF GATHERING**—Few seeds are to be obtained at so little expence and trouble as the Horse Chesnut, where the situation of the growing trees is not distant, as they may be readily picked up by children of almost any age; but it is requisite that this be done only on a dry day, and at a time when the ground on which they have fallen, is not wet. Deer will eat them freely; but horned cattle, sheep and hogs, very partially: no other than such as are fully ripe, ought to be kept for sowing, those first falling being frequently immatured. Where the crop has not wholly fallen, it will be advantageous to beat the trees, by a man climbing into them with long and light poles. Such as are gathered wet, require to be immediately sown.

**CURING SEEDS**—On being picked up dry, nothing farther will be requisite than to lay them secure from wet, and not too thickly; by which they will remain in good preservation, without danger from vermin of any description.

**PRESERVING SEEDS**—In two or three weeks they may be put into sacks or bags, when their room may be required.

**SEASON AND METHOD OF SOWING**—Sow them either in January or February, as the season may admit. They will succeed in any good ground,

and by their great strength, make way through more heavy soils, than the seeds of most other trees.

On the beds being prepared, place the nuts regularly and moderately thick on the surface throughout ; covering them with the natural soil, two inches deep ; on which, every sound seed may be expected to produce a plant.

**TRANSPLANTING**—As Common Ash, with the exception of planting chesnuts one foot a part in the rows, from their broad foliage.

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## **CHESNUT, SWEET ; *FAGUS CASTANEA*.**

***NATIVE OF NORTH AMERICA AND SPAIN.***

**DESCRIPTION**—Grows with a large upright trunk, fifty feet high ; abundantly branching into a fine round spreading head : ornamented with spear shaped serrated leaves. Blossoms in July and August, producing flowers in long amentums, succeeded by round prickly capsules, containing two or more nuts, which fine summers ripen freely ; but in cold and wet seasons, the nuts are not always perfected.

**SEED-BEARING TREES**—Ancient parks, are the common situations in which large trees of this description are found, where they have been planted for the benefit of deer ; and in some cases, vistas



and avenues, are formed of them. They are rarely to be met with in woods, but frequently in extensive ornamental plantations; where they are less productive of nuts; from want of room for their widely spreading branches to extend. On wet and cold soils, their seeds are seldom matured in moist seasons.

**TIME OF RIPENING**—The fruit of these trees seldom ripens in England sooner than the first week in November; and in some seasons very imperfectly, being natives of climates more warm throughout the summer and autumn; but are in common seasons sufficiently large and sound, for the purpose of sowing.

**SIGN OF MATURITY**—On the capsules becoming brown, after a warm and dry season, they will expand and the nuts fall to the ground.

**MODE OF GATHERING**—The principal resources for these seeds can be only where trees affording nuts, are in situations not exposed to deer, swine or cattle, which will devour them greedily; and from their being eatable, and consequently liable to stealth, are more difficult to procure in quantities; especially as they are frequently taken away before they are ripe: but, in parks, where deer only have access, the seeds may be readily preserved, by swelling round the bottom of each tree, picking up the nuts every evening after they have begun to fall, which may be practised in other situations. The whole crop will shell out immediately after a sharp frost; or prior to which, on the capsules ge-

nerally opening, they may be beat off the trees with long and light poles. Such as are gathered wet, require to be immediately sown.

**CURING SEEDS**—On their being gathered ripe and dry, lay them as Horse Chesnuts, carefully preserving them from rats and mice, which will otherwise injure them.

**PRESERVING SEEDS**—In about a month, they will be sufficiently dry to put into sacks, bags, or any other packages.

**SEASON AND METHOD OF SOWING**—The time and manner of sowing these nuts, with their after treatment, are the same as directed for Horse Chesnut; with this difference, that the sweet chesnut, will not freely succeed in any other than a soft, deep, and rich light loamy soil inclining to sand.

**TRANSPLANTING**—In the season and manner of Horse Chesnut.

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## CYPRESS; *CUPRESSUS SEMPERVIRENS*.

*NATIVE OF CRETE.*

**DESCRIPTION**—Hath an upright straight stem, closely branching from the bottom, into numerous quadrangular branches, growing thirty to forty feet high, and closely garnished with very smooth, narrow, erect-growing, ever-green leaves, imbric-

cated; flowers in May, producing its cones about the size of nutmegs, on the sides of the branches, well furnished with flat seeds; ripening freely in warm seasons.

**SEED-BEARING TREES**—Ancient ornamental plantations, in least exposed situations, afford the more numerous and favorable trees of this description. The upright variety, is sometimes found singly of pyramidal appearance.

**SIGN OF MATURITY**—These seeds are not to be considered ripe until the cones have become hard and dry; and as in situations where there are no squirrels, they will remain secure on the trees throughout the winter without protection; it will be best to collect them in the spring months.

**MODE OF GATHERING**—It will be easy to gather the cones, by placing ladders against, or climbing into the trees; according to the variety.

**CURING SEEDS**—Lay them dry, until the time of preparing them for sowing.

**CLEANSING SEEDS**—The method recommended to obtain the seeds of White Cedar, will equally apply to these varieties of Cypress; except, that from the greater hardness of the cones, they require heavier thrashing; which, where the quantity is considerable, will be best effected by laying them loosely on the dry boards.

**SEASON AND METHOD OF SOWING**—The same as directed for White Cedar.

**TRANSPLANTING**—Being frequently sufficient to transplant after the first summer's growth, they

may be bedded out in autumn, on September proving moist and wet ; or transplanted in March or April into large pots, placing them an inch or two apart round the rim, as Cedar of Lebanon.

Of the common Cypress we have two varieties, the upright and spreading, called male and female ; differing only in their shape and manner of growth.

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**ELM, BROAD-LEAFED ; *ULMUS CAM-  
PESTRIS.***

*NATIVE OF SCOTLAND.*

**DESCRIPTION**—Rises to a very considerable height, with a trunk of great magnitude ; having a large spreading branching head, with long, broad, rough leaves ; flowers in March or April, affording an abundance of hop-like seeds, adhering to the younger branches ; ripening freely in all seasons, throughout England and Scotland.

**SEED-BEARING TREES**—Are of general growth ; but the most convenient trees are to be found in largest quantities in old parks, vistas, and avenues. Sheltered situations will be found the most convenient to procure large quantities of these seeds, preventing the falling seeds being blown away ; and are frequently found growing singly in hedges,

and pasture grounds, from which moderate quantities of seeds may be obtained.

**TIME OF RIPENING**—About the first or second week in June, they may be expected ripe, in common seasons.

**SIGN OF MATURITY**—On the approach of these seeds to maturity, they will assume a pale brownish colour; when they will incline to fall from the trees. If the kernel is then full and of hardish substance, they may be considered sufficiently ripe for gathering. From their peculiar form and lightness, they will be in extreme danger of being blown away by boisterous winds, as they ripen; it therefore requires that they be minutely noticed at that season.

**MODE OF GATHERING**—These seeds require to be beaten off, by men with long and light poles, climbing into the trees on a dry and still day; laying previously, sound mats or cloths beneath, to receive the falling seeds; when the boughs to which they are attached, must be strongly struck or beaten; and, if about one half the crop fall to the ground, they will be in good condition to collect, repeating such beating in two or three days, when the whole may be expected to fall. They will be most easily collected together by turning up the cloths; and if, previous to the seed being beat down, the surface of the ground be cleared, in manner directed for gathering Beech Mast, it will facilitate this business. On picking out the sticks and leaves falling among the seeds, put them

into sacks. Those gathered wet, and such as are not over ripe, on being immediately, sown will rise the same season, keeping the ground constantly moist.

**SEEDS CURING**—At farthest, on the evening of the day they are collected, they will require to be put out of the sacks, spreading them evenly three to four inches deep, and turning them over lightly, morning and evening every day, with a close-tined fork, or broad shovel; or they will heat to the great injury of the seeds. On the weather being warm, they will become somewhat dry in about ten days or a fortnight, when they may be laid doubly thick; turning them over once in two or three days, until they are ready to put into sacks or bags. No seeds are in more immediate danger of being destroyed by heat or sweat. In this situation they are very subject to depredations from mice, &c. especially the larger seeds of the broad-leaved; that the place in which they are deposited ought to be easy of access to cats.

**SEEDS CLEANSING**—Picking out the stalks and leaves falling with the seeds, is all which can be done to clean them.

**PRESERVING SEEDS**—The season of the year in which these seeds are gathered, commonly proving warm, they will soon become dry, when they may be packed in sacks or casks, closely crushing them in; by which, on being dry, they will be best preserved.

**SEASON AND METHOD OF SOWING**—The seeds

of this tree require to be sown in January, or early as the season will admit ; that they do not become over dry, before they are put into the ground, and their vegetative properties be thereby destroyed. The earth in which they are sown, requires to be light and soft; as they will be unable to break through a close and adhesive soil. Where the natural earth is literally a soft loam, they will freely succeed ; or in a light sandy soil, generally favorable to the seeds of Fir-trees ; in default of which apply the compost recommended for Firs and Pines. Sow these seeds thickly, that the surface of the beds, on being made even, be more than singly covered with seeds. Earth them over with same soil as that of which the bed consists, not more than half an inch deep, making even the surface of the beds.

**TRANSPLANTING**—In the season and manner of Common Alder.

Of this we have another variety, freely producing sufficient seeds, about the same season ; commonly called upright narrow-leaved Wych Elm, of more erect and slender growth, having small, narrow, serrated, pointed leaves ; flowering in March or April, and in some instances, ripening its seeds a few days before the broad-leaved.

There is also a species of the Elm freely producing seeds in common seasons, called the Mountain, in two varieties, which are of remarkably liberal and straight growth ; the one having broad leaves more long and pointed than the broad Wych,

and the other broader than the narrow-leaved Wych; flowering in March or April, which ripen their seeds in June: all requiring to be collected, preserved, sown, and transplanted, in the same manner as other elms. These are all we know, freely affording growing seeds.

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## FIR, BAUM O'GILEAD; *PINUS-BALSAMEA*.

*NATIVE OF VIRGINIA.*

**DESCRIPTION**—Grows very erect, with a straight stem, very branchy to the ground, having flat obtuse leaves, of deep green above, and whitish underneath; blossoms in April or May, producing smallish, cylindrical, erect-growing cones, chiefly on the upper branches; containing broad-winged seeds, enclosed in purplish-colored seed vessels, which on rich soils and in warm and dry seasons, ripen freely in England, but not in wet summers.

**SEED-BEARING TREES**—Are principally to be met with in parks, pleasure grounds, and other ornamental plantations. Their seeds will always be best matured on trees growing on rich and warm soils, inclining to sand, or light loam; and the more southern counties, will generally be most productive of growing seeds. Trees of this descrip-



tion, not more than ten to twelve feet in height, frequently afford sound seeds.

**TIME OF RIPENING**—Produces ripe seeds in August, or the middle of September.

**SIGN OF MATURITY**—On the cones becoming of a purplish hue, the seeds will approach to maturity; on first observing them in the smallest degree to open or expand, they will be sufficiently dry and hard to collect, and require to be immediately gathered, or the scales will soon be separated and the seeds scattered by the winds. Squirrels, will greedily devour them, on becoming fully ripe.

**MODE OF GATHERING**—The crop of these seeds will be found principally growing at the tops of the trees, or extremities of the branches; on which account, boys from fourteen to fifteen years of age, will more safely, expeditiously and cheaply, climb into them, than grown persons; each provided with a sharp weed-hook commonly used by farmers, to cut off the cones, that they fall to the ground: but if the scales are found to separate in the hand, or break by their fall from being fully ripe, they must be gathered by hand only; and put into small bags tied before each boy, which may be thrown down on finishing each tree. Where they require to be gathered by hand, to avoid breaking; stronger weed-hooks must be used, to pull forward the boughs bearing cones, whilst those beneath are picked up in skips or baskets.

**CURING SEEDS**—Shoot down the bulk of cones, &c. in the most airy part of the room, thinly; and

where neither rats or mice frequent. By turning them over once or twice a day, the scales and seeds will become separated; a broad shovel is the best implement for this purpose, when use mat or cloth shoes, to avoid breaking the seeds.

**CLEANSING SEEDS**—On the cones becoming dry by sufficient turnings, with a thrashing flail, gently beat them over, not having on other than cloth or mat shoes; when the scales and seeds will be found to separate. Take care not to bruise the seeds, and repeat the thrashing after turning over the cones; then riddle the entire quantity of scales and stalks, by such sieve, as will conveniently admit of the seeds falling through, at the same time stopping the refuse: by the application of finer sieves, and moderate but steady wind, the seeds may readily be made perfectly clean. Should the cones not be entirely broken by thrashing in the room, lay those which are not wholly broken, upon cloths in the full sun; and in a day or two at most, they will wholly separate.

**PRESERVING SEEDS**—Put them into bags, placing them in dry situations secure from vermin, until the season of sowing.

**SEASON AND METHOD OF SOWING**—The safest season in which to sow Fir-Tree Seeds of all descriptions, is, the middle or latter end of April, when little or no frost can be expected; but this must be determined by the situation in which they are sown, being more North or South: the young plants being extremely susceptible of frost. On the common

soil being unlike that we have described for the fir tribes, the beds must be formed of the compost prescribed, making even as possible the surface with a very fine rake ; when sow the seeds thickly, on their being good, and more so when any defect in them appears ; covering them evenly, about one third of an inch deep, by finely sifting the same soft and light soil over the seeds, leaving the surface of the beds as smooth as possible. These seeds not perfecting every year, from being native of an hotter summer climate, and as the seeds on being well ripened, will grow freely the second spring, it will be advantageous to collect them in more considerable quantities in favorable and plentiful seasons.

Should the month of April prove dry, it will be beneficial to moisten the surface of the beds, immediately on the seeds being sown, by lightly sprinkling with a water pot, having a fine rose ; but in no greater proportion, than barely to moisten the seeds, as heavy waterings may render the surface binding and adhesive : when apply the wattled hurdle, as directed in Common Alder, to keep the ground cool, and defend the young plants from the heat of the sun : by which, they will otherwise be in great danger of being scorched. Immediately on the wattled hurdle being placed on south side the bed, it will be beneficial to cover the seeds, lightly but closely with the thin or smaller branches of gorse or furze ; which keeping the ground cool, and in some degree excluding the external air, will cause

the young plants to rise more early, and prove an effectual barrier against early depredations of birds; as the chaffinch, greenfinch, &c. which are their chief annoyances, by plucking them out of the ground before the husk of the seed has separated from the crown of the young plant, but will not touch them on the husk being cast off; and by which whole crops are frequently destroyed where they are unprotected. In default of furze, the slender branches of yew or ivy, may be successfully applied; but the former is to be considered the best preservative, being better calculated to keep out the drying winds, as well as the birds; the latter having once discovered them, it will be found almost impracticable to keep off. Soon as the crop is wholly up, and the husks of the seeds are discarded, take away entirely the branches with which they have been covered, clearing the surface of the beds of all refuse, to admit air to strengthen the young plants.

In extreme dry and warm seasons, watering the young plants of these late sown seeds, will be necessary; but this requires to be practised with much caution, as on being performed in an evening, the dew or lobworms will be attracted in considerable quantities, which will not fail to draw many of the young plants out of the ground; and if practised in the day, from the water being soon dried up, it will prove of little benefit. The most proper time in which to perform the business of watering, is early as the break of day; after which time

they will not be molested by worms, and the water will have had sufficient time to penetrate the soil throughout, before the warmth of the day becomes great to affect the young plants from the sun shining upon them. All firs except the larch having completed their growth at midsummer, it will be unnecessary to water them after that season; when the wattled hurdle may be removed, its protection being no longer necessary. It will be easy to effect a plentiful watering of all young seedling plants during the spring and summer seasons, from the principle on which the beds are formed, by the embankment on the exterior throughout, designed to retain every abundant supply, whether by showers or on being watered; in the spring, soon after the plants have appeared, only moderate watering will be sufficient, but frequent as occasion may seem to require; and on having attained more strength, after the leading shoot has been formed, on the weather being warm or dry, they may be more plentifully supplied, even in a small degree to deluge the ground; repeating this no oftener than to prevent the soil becoming dry. In the business of watering seedling firs, during the summer season, it will be of importance to recollect that in such of the species, as are natives of countries where the summers are more hot than in England, there will be danger of over watering, by which the young plants at that early age may be starved, which will be observable in the colour of their grassy leaves, and finally by their stunted growth; of which the Baum O' Gilead, Silver, Hemlock, and other Ame-

ricanspruce firs, also Weymouth Pines are instances, and to which pond, dyke, river, or other water softened by the mild air of the summer, ought always to be applied ; and if possible, never to deluge the beds in which they are sown, but when the weather is very warm, and less seldom than in the more hardy, as Larch, Scotch and Norway spruce, which will be in little danger of injury from over watering, where the soil is light and dry.

**TRANSPLANTING**—No other species of the firs, are to be considered of sufficient growth to transplant with safety, on being one year old, than the Larch, frequently rising four inches and upward the first season ; from the small progress which these seedling plants make the first year, even in the most favorable soils, seldom attaining more than two inches, they will require two years growth. The Baum O'Gilead, is one of the few varieties of the fir tribe, which may be bedded out in the autumn, as well as the spring season ; on September proving showery and the ground moist, being planted about the middle of that month, these plants will form fresh roots before winter. The beds being prepared as for Common Alder, plant them in similar rows across ; but these being of less common growth than other firs, and more branchy than many other seedling trees, it will be beneficial to place them singly in the line, not more than an inch a part ; by which, on favorable soils, strong plants will be obtained at the end of two seasons for further transplantation ; they may likewise be bedded out in same manner in the spring.

## FIR, LARCH; *PINUS LARIX*.

*SIBERIA AND SWITZERLAND.*

**DESCRIPTION**—Hath an upright, straight, whitish stem, growing to very considerable height; with long, slender, pendulous branches; and long, fine, pale-green leaves, in bunches; with different colored flowers in the varieties, appearing in April; succeeded by small cones about one inch in length, which usually ripen throughout South and North Britain: but in moist and cloudy seasons, will be best matured Southward.

**SEED-BEARING TREES**—There are few old plantations of magnitude which do not abound with them. The largest and most productive cones, will be obtained from trees growing on warm, sandy, or light loamy soils. Northward are many large and entire plantations of them; also in Norfolk, Beds, and in other Southern counties; even where the soil is only of deep sterile sandy nature.

**TIME OF RIPENING**—In December when the cones have become brown and hard, and are dry, they may be collected.

**SIGN OF MATURITY**—These seeds will always be best perfected by remaining on the trees throughout the winter; nor will they be in danger of shedding, or receiving the smallest injury from the severity of that season; but will be much benefitted by the drying winds of spring; which will

also facilitate the breaking of the cones, and cleansing the seeds. But it will be unsafe to leave these cones on the trees through the winter, where squirrels abound, as they will eagerly destroy the seeds during the severity of a hard winter.

**MODE OF GATHERING.**—It will be most easy to collect these cones from young trees; such as are about twenty feet high, will be found to produce numerous full-grown seeds. Where such bearing trees are not met with, those of larger growth must be had recourse to; the great pliability of the branches, will contribute to the cones being collected with facility, as they may be drawn into almost any direction by hooks; and the cones, which frequently hang very thick, be cut or plucked off and put into bags or thrown to the ground. These cones are commonly attached to the sides of young shoots of the former year.

**CURING SEEDS.**—On the cones being taken away, they may be laid in any dry and airy situation, until they are broken in order to obtain the seeds; but must be secure from rats and mice.

**CLEANSING SEEDS.**—In April and soon as the weather is sunny, spread the cones very thinly (if singly the better) on whole cloths laid in the full sun; turning them over occasionally, in order to their being regularly dried: this being practised a few days, they will expand in proportion to the degree of warmth which the sun affords; and on it becoming warm before the common season of sowing these seeds, the latter end of April, many of



the best seeds may be obtained by riddling them with a coarse or wide wicker-sieve, entirely stopping the cones and letting through the seeds. None is better suited to this purpose than such as are commonly used by farmers in dressing beans. From the greater compactness of these cones the seeds will be more sparingly thus obtained, than of other firs; but having been thus dried in the sun, the scales will be more readily separated and broken to pieces by splitting immediately, and before they become damp or moist in the smallest degree, with what is called a steel-mill, used in breaking Horse Beans, &c. setting the gage in such manner as to admit of the seeds passing, unhurt, through the mill with the scales; but it will be difficult to effect this if the cones are not well dried, as they will be tough, and consequently not break freely; but by drying them with artificial warmth, as on a kiln, the seeds would be in extreme danger of becoming scorched, by which their vegetative property will be at once destroyed. Where large quantities are obtained or required, the seeds will be most cheaply, expeditiously, and plentifully obtained by breaking the cones by a tanner's patent bark mill, with a horse; by which, on their being sufficiently dry, immense quantities of these cones may be speedily broken and their seeds obtained. By either process, the seeds can only be completely cleansed by the application of proper sieves; first using such as are coarse, or wide in their work, to let through the seeds, and at the

same time sufficiently narrow to retain the entire and largest pieces of broken scales ; when repeat the business of sifting by other sieves, each being finer as they are successively used, until the seeds with the smallest particles of the cones and dust produced in the operation, are left together ; which may be made perfectly clean by finest sieves and running down before a steady wind. On the cones being only divided, and not entirely separated in going through the mill, such require to be again broken, in order to obtain the whole of the seeds ; which being more hard than others of the fir tribes, will be in less danger of being bruised throughout the process.

**PRESERVING SEEDS**—Place them in any dry situation, securely packed in bags or boxes to preserve them from vermin.

Seeds of Larch, gathered fully ripe, will grow equally the second year as the first ; and may be most easily obtained for sowing the second spring, by spreading them thinly on whole cloths, fully exposed to the sun, during the warmer parts of the summer ; by which the cones will freely expand, to admit of all sound seeds being liberated from the balls, on being riddled by a coarse or widely-worked sieve, as used by farmers in dressing beans, only sufficiently narrow to retain the entire cones ; which being thus previously, and fully dried, breaking them by any mill or other instrument will be unnecessary ; and the seeds becoming thus dry, will be in the fittest state for

bags, boxes, or any other mode of preservation, until the season of sowing. On crops of these seeds being unusually large in fine and favorable seasons, this method may be practised with great advantage.

**SEASON AND METHOD OF SOWING**—The same season and method of sowing as has been directed for Baum-of-Gilead Fir, will be favorable to the Larch; with the exception, that the seeds being much smaller will require to be covered proportionably less thick, by finely sifting the same light soil over the seeds not more than a quarter of an inch deep; observing the same precautions to water, shade, and cover the beds.

**TRANSPLANTING**—This deciduous fir being of more liberal growth than either of those which are ever-green, frequently arriving at four to six inches in height in first summer's growth, will commonly admit of being bedded out in the following Autumn; which requires to be performed in same manner as directed for common Alder, observing that the soil in which they are planted be similar to that which is favorable to firs in general. At the end of one years growth in the seed beds, they may be transplanted into nursery rows, as common Ash Plants.

## FIR, HEMLOCK; *PINUS CANADENSIS*.

NATIVE OF NORTH AMERICA.

**DESCRIPTION**—Of moderate growth, branching thinly; having narrow, obtuse leaves, ranged two ways. Flowers in May, and produces small roundish cones. Rich soils and warm seasons are necessary to perfect the seeds.

**SEED-BEARING TREES**—The Hemlock Spruce being more scarce and of humbler growth than any other of the fir tribe, sufficient trees will more generally be found singly planted in pleasure grounds, or in curious plantations and shrubbery departments. Those only will be found productive of good seeds, which are of greatest altitude, or oldest growth; but such bearing trees are rarely found.

**TIME OF RIPENING**—This tree maturing its seeds less freely in this country, than most other firs, will only afford them fully ripe in our warmest seasons; and are fit together in November, or may remain on the trees until March.

**SIGN OF MATURITY**—The scales of the cones becoming hard and dry, of pale-brown colour, their seeds will have attained full growth.

**MODE OF GATHERING**—The same as directed for Black Spruce Fir.

**CURING SEEDS**—Spread them thinly where they can be benefitted by good proportion of air to dry them, and secure from vermin.

**CLEANSING SEEDS**—As is directed for American Spruce Fir.

**SEASON AND METHOD OF SOWING**—Same as for Larch Fir, in the open ground ; but on great scarcity of these seeds, they may advantageously be sown in pots, as Red Cedar.

**TRANSPLANTING**—In the season and manner of Baum-of-Gilead Fir.

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## **FIR, SCOTCH; *PINUS SYLVESTRIS*.**

**NATIVE OF SCOTLAND.**

**DESCRIPTION**—Grows sixty to seventy feet high or upwards ; having a straight stem, with regular branches around, and smooth deep-green leaves. Blossoms in May, producing short, pyramidical, acute cones ; ripening its seeds abundantly in common seasons, and even most Northward.

**SEED-BEARING TREES**—Are of somewhat general growth in most counties. Warm and dry heathy, sandy, or light loamy soils, are most favorable to the production of these seeds ; on which they ripen freely in common seasons ; but cold and wet clayey countries are extremely unfriendly to their production ; such grow in large quantities in some parts of Bedfordshire and other Southern counties, but particularly in the North of Eng-

land; and more so in the colder region of Scotland, their native country.

**TIME OF RIPENING**—The cones of this tree will have become dry in December, when they may be collected as Larch.

**SIGN OF MATURITY**—These seeds will also be best perfected by remaining on the trees throughout the winter season; in which situation they will be much benefitted by drying winds in the spring, which will also assist the cones in breaking; taking care that they be collected in February or early in March, before they expand and the seeds be disseminated. Squirrels will eagerly devour them in a severe winter.

**MODE OF GATHERING**—They will be most easily collected from young trees, as the Larch; trees little more than twenty feet high afford not only the strongest seeds, but frequently in very considerable quantities. The cones are generally produced at the ends of the young shoots of the former year's production. They may be gathered in manner of Larch, by climbing into the trees, or otherwise with hooks; but the branches of Scotch fir being more strong, the lower parts of some trees may be better cleared by placing ladders around them.

**CURING SEEDS**—On the cones being taken from the trees, lay them in any dry situation, secure from rats, until they are broken in order to get out the seeds.

**CLEANSING SEEDS**—The same process as is di-

reected for Larch will be found throughout equally applicable to the Scotch fir; recollecting that the seeds being more soft, are liable to greater injury by being bruised with the feet. The cones being larger than those of the Larch Fir a wider gage may be necessary, which can readily be formed in the patent bark mill. On the crop being large, after a warm summer it will be very advantageous to collect a supply for a future season; as the seeds being fully ripe, will be most easily obtained by spreading the cones thinly on cloths, during the warm summer months, and riddling them through a coarse sieve as is directed for Larch Fir, at the conclusion of cleansing its seeds.

**PRESERVING SEEDS**—Place them in any dry situation packed secure from vermin in bags or boxes, until they are required to be sown.

**SEASON AND METHOD OF SOWING**—In all respects as directed for the Larch Fir.

**TRANSPLANTING**—We have but few species of the fir tribe which will safely succeed on being transplanted in any other season than the spring, which, for the greater part, is to be considered the most certain. February will prove the most favorable month for this work, before the harsh and cutting winds of March prevail, which in the business of planting would much dry their fine and tender fibres; and from the ground being dug later in the season it would be open to parching winds; that on the spring not proving wet their growth will be materially affected. At the age of

two years they will be in the fittest state to bed out. The roots of the young plants being generally small and fibrous, will seldom require to be reduced by the knife; but it will be necessary to plant them somewhat deeper than before. Having fixed on light ground of sandy nature, similar as possible to that in which they have been sown, or in default of which a soft loam inclining to sand, proceed to mark out the beds four feet wide, exactly as has been directed for Common Alder, and in the same manner, but the rows somewhat more distant: on the first line being marked out by the spade apply the young plants, holding them at nearly equal distances in both hands, not less than an inch apart, but exactness is not necessary, when lightly earth up the roots without treading upon or any way compressing the soil to the plants; in which manner and in rows nine inches apart, plant the bed throughout.

In this situation they may remain two years, when they will be sufficiently strong to transplant into nursery rows, or for final transplantation, where large trees are not required.



## **FIR, SILVER; *PINUS PICEA*.**

***NATIVE OF GERMANY AND SWITZERLAND.***

**DESCRIPTION**—Rises with an upright, straight stem, seventy feet or more in height, and of considerable bulk, having a smooth bark, with branches almost to the bottom, and solitary flat leaves. Producing its flowers in May, and very large erect-growing cones, with numerous large blackish seeds, in brown capsules; freely ripening in warm, hot, and dry summers; and in tolerable quantities when seasons are moderately warm.

**SEED-BEARING TREES**—In ancient parks and plantations the most favorable trees are to be found, especially where the soil is light, deep, and warm.

**TIME OF RIPENING**—About the latter end of September or early in October, if the season is warm and fine, they may be expected sufficiently ripe to gather.

**SIGN OF MATURITY**—On the cones containing these seeds, becoming of pale-brown color, but not until they are about to expand, they will require to be collected; and equal attention is necessary as to Baum-of-Gilead Fir at the time of ripening, or will be subjected to the same accidents from boisterous winds and squirrels.

**MODE OF GATHERING**—The cones, containing these seeds, are chiefly produced towards the tops of the trees; and also, in some measure, at the ends

of the more widely-extended branches. No other will be found so safely and cheaply to collect them as stout active lads, who are best able to make their way between the thick and spreading branches of the Silver Fir, the cones of which require to be separated from the tree in manner as has been directed for the Baum-of-Gilead Fir.

**CURING SEEDS**—On the cones being taken from the trees, they will require as much air as possible to dry the scales, in order to their separating; and frequently to be turned over with a shovel, which will tend to separation: secure the seed from rats and mice, and guard against treading on such as are shelled out: cloth or mat shoes are most safe in which to perform this business.

**CLEANSING SEEDS**—When the cones are become sufficiently hard and dry to separate by being beat, gently apply a thrashing flail over the whole, having on soft shoes, altogether guarding against bruising the seeds, and repeat the thrashing after turning over the cones; when riddle the whole quantity, consisting of scales, stalks, and seeds by a coarse or wide sieve, but sufficiently narrow or fine to stop the bulk of the refuse and let through the seeds with the light chaff; after which, by the use of finer sieves and a steady moderate wind, the seeds will easily be cleaned from the chaff.

**PRESERVING SEEDS**—Put them into boxes or bags of convenient size; placing them in dry situations, secure from rats and mice.

**SEASON AND METHOD OF SOWING**—The same

as in Baum-of-Gilead, with the exception of covering the seeds somewhat more thickly, being of greater bulk and substance, by finely sifting over them the same light soil not more than half an inch thick.

This tree, like the Baum-of-Gilead Fir, not freely ripening its seeds in seasons wanting sun, it is advisable to collect them in more considerable quantities after a warm summer, when the seeds will be more large and full, and afford a sure supply for the following year.

**TRANSPLANTING**—In the season and manner of Scotch Fir.

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## FIR, NORWAY SPRUCE; *PINUS ABIES*.

### NATIVE OF NORWAY.

**DESCRIPTION**—Grows with an upright stem of considerable bulk, and to very great height, branching to the bottom; hath single, narrow, sharp-pointed dark-green leaves: flowers in May, and produces large and long cones, hanging downward; its seeds ripening freely and abundantly, in warm and dry seasons.

**SEED-BEARING TREES**—May be found growing more or less, in every county throughout England; these on strong and rich ground, will invariably be

found to produce the best and most considerable quantities of seeds, in favorable seasons ; but cold and wet wood, land and clayey soils, are unfavorable to maturing them. In favorable seasons, this tree will produce cones eight inches long, plentifully furnished with sound seeds ; but in cold seasons, not more than half that length, and sparingly supplied.

**TIME OF RIPENING**—In favorable seasons, these seeds will be matured early in November ; but in wet Autumns, not until the latter end of that month. First begin to collect those most exposed to squirrels, which will early destroy them ; where are no squirrels, the cones may remain on the trees until February, or March ; but if April prove warm, the cones will expand and the seeds be lost.

**SIGN OF MATURITY**—These seeds are not to be considered ripe, until the scales of the cones have become dry, and of a hazel complexion.

**MODE OF GATHERING**—They will be most readily obtained by boys climbing between the thick branches of the trees, pulling by the hand, or cutting them off with weed-hooks, to fall to the ground ; when they may be gathered together, as other fir cones, and taken away ; this tree producing its cones, principally at the extremities of the middle and lower branches, it would be found difficult for full grown persons to collect them.

**CURING SEEDS**—Lay the cones about one foot thick, turning them over once a week, until the seeds are got out.

**CLEANSING SEEDS**—The seeds of this species of fir, will be easier obtained from the cones, by laying them in the sun, than most others, as they are more free to expand; these cones being commonly very large and long, will be more readily broken, and their seeds obtained by the Patent Bark Mill; which will afford a wider gage, and is to be preferred, as it will admit of receiving and breaking far greater quantities; which before they are sufficiently lacerated, will require to be passed repeatedly through the mill, that the scales be entirely separated, and the whole of the seeds obtained. The which may be perfectly cleansed from their refuse, by the application of various sieves, as in Larch; but great care is requisite not to tread on these softer seeds, being on that account more liable to injury. On the crop being large, after a warm summer, it will be highly beneficial to gather an ample supply for the ensuing season, as they do not always equally mature; and on the seeds being fully ripe, they will be most readily obtained by spreading the cones thinly on cloths, during the warm months; and riddling them through a coarse sieve, as is directed for Larch Fir, at the conclusion of cleansing seeds.

**PRESERVING SEEDS**—Place them in dry situations, either in bags or boxes, secure from vermin.

**SEASON AND METHOD OF SOWING**—In all respects as directed for Larch.

**TRANSPLANTING**—No species of the fir, will be found to succeed more freely by autumn, planting

than the Norway Spruce; which on being bedded out in September, or the early part of October, the season proving moist, they will be plentifully furnished with young fibres before winter; and in point of growth the following summer, will have infinitely the advantage of such as are transplanted in the spring.

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## FIR, BLACK SPRUCE; *PINUS NIGRA*.

*NATIVE OF NORTH AMERICA.*

**DESCRIPTION**—Hath an upright straight stem, growing less lofty than the Norway; branching from bottom to-top, with very many short blunt pointed leaves, of dark green color; flowering in May, and producing small erect cones, about an inch long, which in favorable seasons produce fully ripe seeds; but most freely on warm and dry rich soils; and in the more southern counties.

**SEED-BEARING TREES**—This variety being of humbler stature than the preceding, are not generally to be found in large plantations; but amongst the more rare and ornamental trees and shrubs of lower growth, usually planted where the soil is warm, light, and deep; from a comparative scarcity of these trees, those of sufficient age and size to produce seeds, are not to be found plentifully.

**TIME OF RIPENING**—These seeds are seldom sufficiently ripe in England, sooner than the latter end of November, being natives of a much warmer climate.

**SIGN OF MATURITY**—On their becoming ripe, the cones will incline to a dark-brown complexion; when they may be gathered, or suffered to remain on the trees until spring, where are no squirrels.

**MODE OF GATHERING**—The cones may be readily collected, by placing ladders of moderate length round the trees, plucking them off by the hand; at most, these seeds can be obtained comparatively in but small quantities in England.

**CURING SEEDS**—Spread them thinly on a dry floor.

**CLEANSING SEEDS**—The quantity of these cones produced in common seasons, being not very considerable, it will be easy to get out the seeds, by exposing them on cloths laid open to the full, and warm sun of April; in two or three fine days at most, they will be fully expanded, and the seeds may be readily obtained, by beating the cones with a flail, in a sack or otherwise; when it will be easy to separate them from the refuse, by fine sieves, and a steady wind.

**PRESERVING SEEDS**—Place them secure from vermin, in a dry situation.

**SEASON AND METHOD OF SOWING**—In all respects as directed for Larch Fir.

**TRANSPLANTING**—In the season and manner of Norway Spruce.

Of American Spruce are two other varieties, which are principally planted for ornament, the red and the white; distinguishable chiefly by the complexion of their foliage, and color of their cones on maturation, before the scales become dry; all are of dwarf and compact growth, especially the two former, seldom attaining any great size in this country, but the white is of most liberal growth: the seeds of both red and white, ripen about the same time as the black.

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## HOLLY, COMMON; *ILEX AQUIFOLIUM*.

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—With an upright trunk, branching near thirty feet high, in a conic form; hath oval-waved, stiff, alternate leaves, with the edges and extremities terminated by sharp spines, pointing in different directions; and from the sides of the branches small whitish flowers, in short clusters, succeeded by bunches of roundish berries, of deep scarlet color; each containing many seeds, which ripen freely in common seasons.

**SEED-BEARING TREES**—Are usually found intermixed with other forest trees and shrubs of large growth, and singly in many situations: they fee-



quently form hedges ; and in the North are common in woods and forests, where they abound.

**TIME OF RIPENING**—In warm seasons and open situations, are fully matured early in November ; but those in shade, proportionably later.

**SIGN OF MATURITY**—The seeds are not to be considered ripe until their berries are of deep red, or bright scarlet colour, which vary in their complexion : the surest mark of their being mature, is when the berries incline to fall from the trees on the branches being slightly shook : soon as they arrive at this state of maturity, and sometimes earlier in exposed situations, they are eagerly seized by innumerable thrushes and black-birds, which carry off immense quantities in a few days, especially on the weather becoming severe ; that where a large gathering is required, it will be necessary that the business of collecting them commence before they begin to drop off.

**MODE OF GATHERING**—Where large quantities are required, they will be more cheaply and speedily obtained by beating the trees with light poles of convenient length ; especially where are many trees, and growing in obscure situations, which will be immaterially injured by such process ; but in open situations, where they have been planted for ornament, and this cannot be practised, apply ladders, and employ boys to pick them off ; as growing in clusters, they may be thus obtained at an inconsiderable expense.

**CURING SEEDS**—As the berries of these trees re-

quire to be kept a year, previous to the seeds being sown, it is of great importance to attend to their preservation, which will be best effected by burying them in the earth : when a sufficient quantity is obtained, regularly intermix with them an equal proportion of fine and dry sand, well-sifted coal-cinder dust, or very light unbinding loamy soil, free from stones or other rubbish ; when in any dry part of the garden, dig a hole of convenient size to receive the whole, covering the surface with earth ten or twelve inches thick ; which will preserve their kernels in the fullest perfection, and prevent heat or sweat, too commonly destructive to seeds requiring to be buried ; taking care to lay them in high ground, where they remain secure from inundation, or soaking wet . from a want of attention to these particulars, numerous such seeds are frequently lost and destroyed : on the appearance of mice attacking them when buried, place traps about the heap.

**SEASON AND METHOD OF SOWING**—These seeds being of forward growth, require to be sown in January, or early in following month ; when take out the decayed berries from the situation in which they have been deposited for the preservation of their seeds, together with such soil or sand as has been buried therewith, and with the hand rub the whole closely against the bottom of a wire or wicker sieve, (to break such berries as may remain whole,) and of convenient size in the work, that on the seeds being divided they may readily be

sifted through. By this process, on the sieve being proper, the entire parcel of seeds will be separated almost singly; but it requires to be performed only in a dry situation: or it will, in some instances, be more easy to obtain the seeds by rubbing hard the berries and soil in which they have been buried, against the bottom of a finer than common rying sieve, by which is intended that called a saveall; being only sufficiently fine to admit of the soil, on being dry, sifting through, leaving the seeds behind, or in the sieve; and being then ready to be sown, their being wet would prevent the regular spreading of the seeds over the surface of the bed. On the beds being prepared and raked even, sow the seeds, together with the soil in which they have been buried, moderately and evenly thick; this will be best performed by taking small and equal quantities on a spade, and laying them down regularly on the bed; when spread them evenly over the surface, and cover them, not more than half an inch thick, with soil or compost similar to that in which they are sown.

Light and sandy earth is by far the most favorable, it being not only natural to the young plants, but friendly to their breaking through the surface and freely making root.

The green-finch, is a bird peculiarly voracious of the kernels of these seeds, on the young plants first rising, as in firs of general description.

**TRANSPLANTING**—From the inconsiderable ad-

vance of these plants, the first summer, they will be insufficient to transplant with safety sooner than the autumn of the second season. On being planted somewhat early in September, that month proving moist, they will be early established by making immediate roots; but if transplanted in the dead months of winter, will oftentimes shed their leaves to the disparagement of the young plants, and which frequently terminates in their miscarriage. They may also be bedded out in February, but on the spring months proving dry, these plants being somewhat of shy growth, will be less certain to succeed, especially where the soil is not directly favorable. The method of transplanting the Norway Spruce Fir, will prove friendly to Hollies; and after either season of planting, it will much facilitate the growth of these shy plants, to apply the wattled hurdle on the South-side of the bed where it can be so formed to defend them from the warm sun of Spring and early part of summer, even, until midsummer. We have many varieties, of variegated, and blotched-leaved, as well as other Hollies which have been bedded and grafted upon the common; and their seeds on being sown will be found to grow, but will not have sufficient strength to produce permanent plants; and those which are collected from plants variegated, frequently rising with some degree of variegation, on the sun becoming warm or hot, will generally die off.

**HORNBEAM, COMMON; *CARPINUS BETULUS*.**

**INDIGENOUS TO BRITAIN.**

**DESCRIPTION**—Grows fully feathered from the bottom, with an upright stem, forty to fifty feet high in stature; terminating in a very branchy head, adorned with oval, oblong, rough leaves, and plane scales to the cones; flowering in March or April: affords abundance of ripe seeds, on a racemous or long cluster, in most seasons.

**SEED-BEARING TREES**—These are commonly to be found intermixed with other forest trees, in large plantations; and are not unfrequently met with in the exterior of ancient coppices, &c. where they form high and untrimmed hedges. In Hertfordshire and some other counties, woods and coppices abound with them; and more or less are found of them, in every county throughout Great Britain.

**TIME OF RIPENING**—In favorable seasons, and open exposures, they will be ripe the first or second week in November; but in more shady situations, and especially in cold and wet autumns, a week or two later.

**SIGN OF MATURITY**—On the seeds becoming ripe, the cluster containing them will assume a pale brown color; but their full maturity will be better determined by the hard shell, or nut within, becoming of a hazel complexion; in which, if the

seeds are good, a kernel-like substance will be found; and on becoming more ripe and dry, these seeds will easily shake out of their husks by winds, which renders it necessary that they be timely gathered.

**MODE OF GATHERING**—Pollard Trees, or such as have been headed down, and lofty hedges, will be found the most convenient; in which cases, the boughs may be pulled down by long wood hooks, and the bunches readily stripped off by the hand; but from large trees, it will be most easy to cut away the bearing branches, where it can be done, stripping off the bunches on their being thrown to the ground.

**CURING SEEDS**—These light bunches may be laid six inches thick, turning them over once a day until they are sufficiently dry; when mix them with soil, and bury them in earth as Holly Berries. Rats and Mice will attack them in every situation.

**SEASON AND METHOD OF SOWING**—Like other seeds of trees, which have been preserved in earth one whole year, these require to be early sown; which business must be performed soon as the state of the ground will admit, on the approach of spring; or on the kernels beginning to germinate before sowing, great deficiency in the crop will follow. On taking the seeds out of the ground, with the soil or sand with which they have been intermixed, let the whole heap be repeatedly turned over, and as often beaten with the back of a spade or shovel, that the seeds and soil be thereby well incorporated; when sow the whole in manner of Holly Berries,

recollecting that these seeds being much larger, will require to be sown in proportion. In this instance, particular attention to soil is not necessary; as the young plants will rise and succeed in any earth which is tolerably soft, covering them not more than half an inch thick.

**TRANSPLANTING**—In the season and method of Common Alder.

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## LIME, or LINDEN; *TILIA EUROPÆA*.

INDIGENOUS TO BRITAIN.

**DESCRIPTION**—Rises with an upright straight trunk, to great height and magnitude, from sixty to eighty feet; branching regularly round, into a large conical head, ornamented with heart-shaped, acute-pointed, serrated, light-green leaves. Flowers in June or July, producing in a favorable autumn, abundant ripe seeds, contained in berries on bunches suspended at the ends of the branches; but do not always ripen when that season proves wet, and especially on moist and other cold soils.

**SEED-BEARING TREES**—Are in no situation so generally to be found as in parks of long standing, also in vistas and avenues contiguous to ancient mansions; from which they may be abundantly ob-

tained. These trees are of general growth throughout England.

**TIME OF RIPENING**—From the trees blooming late, their seeds cannot be fully ripe sooner than the middle or latter end of November ; and in cases of early frost, are sometimes cut off before they are mature, in which case they fall prematurely to the ground ; but after a warm summer and in a dry autumn, perfect seeds are to be obtained in immense quantities ; few trees producing greater abundance of seeds than the Lime. Sound seeds will remain on the trees uninjured by frosts and snow, until the winter rains have rotted the stalks.

**SIGN OF MATURITY**—It will be easy to determine that these seeds are ripe or otherwise, by pulling down the lower branches of the largest trees, well furnished with seeds. On their being properly matured, the husk or berry-like shell will be dry, and of brown color, containing one or more hardish, fleshy, black seeds ; but if unripe, will be milky, soft, and devoid of substance.

**MODE OF GATHERING**—On their being ripe, clear away all long grass and other rubbish from beneath the trees, where spread mats or cloths for the seeds to fall on ; when with long and light poles, employ stout and able men to beat the outside of the trees, placing ladders against the lower branches, by which greater quantities can be procured. Where cloths and mats cannot be obtained, make choice of such trees as are most conveniently situated, in order to sweep together the seeds, hav-



ing first cleared the ground beneath, and swept away all rubbish. This business must only be attempted on a dry day.

**CURING SEEDS**—Those only which are gathered dry and fully ripe, are proper to lay by at this moist season of the year; such as are unripe and damp will not only mould and decay, but injure those which are sound. Lay them about four inches thick, turning them over, in soft shoes, morning and evening with a broad shovel, about a month. Guard against rats and mice. Such of these seeds as are gathered wet, will require to be directly sown.

**SEASON AND METHOD OF SOWING**—These seeds cannot be sown too early in the Spring, as on becoming too dry they will not germinate. January is preferable to any other month. They will rise, and the young plants best succeed in a soft and cool soil. The trees being natives of moist situations, that which inclines to bog earth, having some proportion of sand or silvery grit, will be favorable; but that which principally consists of brown sand, is preferable to all others. The berries require to be stripped off the bunches, in order to their being more regularly sown; in doing which strew them thickly all over the surface, and in proportion to the seeds being more or less sound; covering them in with suitable soil, not more than half an inch deep. If mice attack these seeds after they are sown, place traps to destroy them.

**TRANSPLANTING**—In the season and manner of Common Alder.

Of the European Lime are two species, the red and green-twigged, each flowering in June or July, producing larger and smaller berries, which commonly ripen their seeds at the same season; seeds of the variety with the middle-sized berries, first falling to the ground.

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## OAK, ENGLISH; *QUERCUS ROBUR*.

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—Grows from fifty to a hundred feet in height, with a trunk of prodigious magnitude, and monstrous spreading head; having oblong leaves, acutely-sinuated, with angles obtuse. Flowers in April or May, perfecting its seeds in common seasons.

**SEED-BEARING TREES**—Are in most counties to be found growing singly in various situations; and in woodland counties, on strong and stiff clayey soils, large woods are entirely formed of them.

**TIME OF RIPENING**—In fine and dry seasons, proper acorns to select for sowing, will fall from the trees, early as the first and second week in November; and later in proportion as the seasons are more wet and cold.

**SIGN OF MATURITY**—When early frosts commence, the acorns having assumed a dark-brown complexion, will generally fall from their cups to the ground ; such only as are sound and fully ripe are fit for seed : those which first fall, and many which are beaten from the trees, are frequently improper, the kernels not being dry and hard.

**MODE OF GATHERING**—The best acorns which can possibly be obtained for sowing, are such as fall from the trees, and nearly of a deep chesnut color ; as those beaten from off the trees before they fall from their cups, not being fully ripe, will decay before the usual time of sowing : those which fall latest, will invariably prove the most sound, and being picked up dry, may be best preserved.

**CURING SEEDS**—Acorns ought not to lie more than four to six inches thick, in the dryest situations ; in which they will require to be stirred twice each day, during a month after gathering : those which are wet when collected, should be immediately sown. Vermin will eat them.

**SEASON AND METHOD OF SOWING**—In all seasons where it is practicable, prefer sowing acorns soon as they are gathered, and never later than January in spring sowing ; as on the kernels inclining to be dry, they will soon decay and rot in the ground. A loamy soil, moderately soft and deep, will prove favorable ; these seeds being very large, require to be sown thickly, in order to a plentiful crop being obtained : on the beds being formed, rake even the surface and strew the acorns that they nearly touch

each other, covering them with the same soil evenly, two inches deep, in two or three weeks, raking even the surface of the bed. In all cases where it is convenient to sow acorns immediately on their being gathered, they will not only be better preserved from decay than by any other method, but be more forward in their growth, than if sown in the spring.

**TRANSPLANTING**—In the season and manner of Common Ash.

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## OAK, CHESNUT-LEAFED; *QUERCUS* *PRINUS*.

*NATIVE OF NORTH AMERICA.*

**DESCRIPTION**—Grows near sixty feet in height; having large oblong, oval, smooth leaves, pointed both ways, and the edges serrated with sinuses uniformly round: Flowers in May or June, producing very large nuts or acorns in short cups, which ripen in tolerable perfection, in our warmest seasons.

**SEED-BEARING TREES**—Will be principally met with in ornamental plantations of large growth, where they have been planted to effect an agreeable variety.

**TIME OF RIPENING**—In the autumn, after a fine and dry summer, but frequently not sooner than November.

**SIGN OF MATURITY**—When ripe, these acorns will assume a brownish complexion, and on early frosts will fall out of the cups to the ground, as the Common Oak.

**MODE OF GATHERING**—On having dropped from the trees, pick them dry as soon as possible, and lay them secure from damp and vermin.

**SEASON AND METHOD OF SOWING**—Same as English-Oak Acorns.

**TRANSPLANTING**—In the season and manner of Common Ash.

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## **OAK, BLACK; *QUERCUS NIGRA*.**

***NATIVE OF VIRGINIA.***

**DESCRIPTION**—Grows near forty feet high, having a dark-colored bark; with large wedge-shaped, slightly trilobated leaves. Blossoms in May, or June, producing its fruit tolerably perfect in our warmest seasons on favorable soils.

——, RED; *QUERCUS RUBRA*.

*NATIVE OF VIRGINIA.*

**DESCRIPTION**—Grows fifty to sixty feet high, with a dark greyish bark; having long obtusely-sinuated leaves, the sinuses terminated by bristly points, sometimes with red spotted veins, generally dying in autumn to a reddish color, remaining long on the trees. Flowers in May, ripening its seeds here only after a favorable summer.

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——, WHITE; *QUERCUS ALBA*.

*NATIVE OF VIRGINIA.*

**DESCRIPTION**—Rises to the height of thirty or forty feet, having a whitish bark; long, pinnatifid light-green leaves, with the sinuses and angles obtuse. Blossoms in May or June, producing acorns much like those of the English Oak; but as other American Oaks, ripens its seeds less freely.

**SEED-BEARING TREES**—The several varieties of the Virginian Oak, are much less general in this country than the common; and these trees are seldom found but in ornamental plantations of large growth; at latest, on the commencement of frost,

their seeds will fall to the ground ; immediately on which they require to be picked up.

SEASON AND METHOD OF SOWING—Same as English Oak Acorns.

TRANSPLANTING—In the season and manner of Common Ash.

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## PINE, STONE; *PINUS PINEA*.

*NATIVE OF SPAIN AND ITALY.*

DESCRIPTION—Rises with an upright straight stem, nearly sixty feet in height, with a rough bark ; and very long pea-green leaves, two in each sheath. Flowers in April or May, producing thick roundish cones, which grow very compact, having large kernels or seeds, ripening freely on warm sandy soils and in dry seasons.

SEED-BEARING TREES—The most favorable will be met with on rich sandy, and warm, light, loamy soils ; not on cold, wet, clayey ground, which rarely produces ripe seeds. These trees are principally employed to diversify large plantations.

TIME OF RIPENING—The scales of the cones will have become dry and hard, in December.

SIGN OF MATURITY—Notwithstanding they will have become ripe about Christmas, their kernels will arrive at greater hardness and substance, by

hanging on the trees until February or March : when it will be more easy, pleasant and cheap, to collect them.

**MODE OF GATHERING**—To be performed in the same manner as has been directed for Weymouth Pine ; recollecting, that the cones are commonly produced near the extremities of the branches, and at the ends of the shoots of the former years growth ; but generally not in very considerable numbers.

**CURING SEEDS**—These cones may be laid by, in any situation, when collected fully ripe ; until the seeds are required : from the strength and hardness of their scales, are more secure from vermin than the seeds of other firs and pines.

**CLEANSING SEEDS**—The most safe and effectual method to obtain sound seeds from these hard cones is, by boring and splitting them, as has been directed for Cedar of Libanus.

**PRESERVING SEEDS**—Bags or boxes of convenient size will be most proper, placing them dry and out of the reach of mice and rats.

**SEASON AND METHOD OF SOWING**—The middle or latter end of April is the most favorable season for sowing the seeds of all pine trees, as in firs ; and the same soil will invariably prove friendly. These seeds being large, require to be covered at least half an inch thick, and they will readily make their way through their natural light earth ; and being large, require to be sown thickly, in order to obtain an ample crop.

Stone-pine seeds kept in the intire cones will re-



main sound four or five years ; but on being broken cannot be depended on after the second spring. It will therefore be advantageous, on the summer proving warm and crop plentiful, to collect more abundantly of them than in common seasons.

**TRANSPLANTING**—These plants being of more reluctant growth than other pines or firs, it is recommended to transplant them on being one year old, in March or April, in pots of light sandy earth, and placing them an inch apart round the rim ; as directed for Cedar of Libanus, setting the pots in shade, as occasion may require.

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## PINE, WEYMOUTH; *PINUS STROBUS*.

*NATIVE OF NEW ENGLAND.*

**DESCRIPTION**—Rises with an upright straight stem, an hundred feet high, widely branching, having a very smooth bark ; with long, slender, dusky-green leaves. Flowers in April, producing lengthy loose cones, hanging downward ; containing numerous black seeds, which in warm seasons, ripen plentifully on favorable soils.

**SEED-BEARING TREES**—Are to be found of considerable magnitude in most counties, where the land is not cold, or wet in the extreme ; and in some instances, are entire plantations of these Trees.

**TIME OF RIPENING**—Late in September or early in October, the long and pendent cones containing these seeds, will in fine seasons begin to crack; and in proportion as the autumn proves sunny and warm, they will expand, until their winged seeds are entirely shed out and blown away.

**SIGN OF MATURITY**—On the very earliest appearance of the scales of the cones inclining to open, they will require to be immediately gathered; therefore, ought to be minutely noticed at that juncture, when the cones will be sufficiently hard and dry, and the seeds fully ripe to collect. In our warmest seasons, the cones of this tree will be found six inches in length and upwards, abundantly furnished with ripe and full-grown seeds; but on the summer proving wet and cold, not more than three to four inches, sparingly furnished: when the cones are only beginning to open, there can be no immediate danger of the seeds shedding; but in some situations, there is liability of their being attacked, and in great measure destroyed by squirrels, where these animals peculiarly voracious of kernelled seeds abound.

**MODE OF GATHERING**—The cones of this species, pendent at almost every extremity of the branches in plentiful seasons, may be difficult to reach; but on the crop being considerable, and the trees of somewhat general growth throughout England, large quantities may be obtained: they will be easily separated from the trees with weed-hooks made very sharp, by boys, in manner directed for

**Baum O'Gilead and Silver Firs ;** leaving the cones to fall to the ground, as their scales will not separate.

**CURING SEEDS—**Lay the cones six inches thick, turning them over once a day ; by which many of the seeds will fall out, but the scales will not separate : attention is necessary that the seeds be not bruised by treading on them. Rats and mice must carefully be guarded against ; and as these will admit of early thrashing, it will be beneficial to admit as much air as possible, to promote the expansion of the cones.

**CLEANSING SEEDS—**On becoming dry, many seeds will be found shed on the floor ; and on the cones freely expanding, beat them over with a thrashing flail, more heavy than that employed in getting out the seeds of Baum O'Gilead and Silver Firs, whose scales separate, by which the largest and best seeds will be obtained.

**SEASON AND METHOD OF SOWING—**The same as directed for Scotch Fir, or *Pinus Sylvestris*.

**TRANSPLANTING—**In the season and manner of Scotch Fir.

## **PINE, WILD; *PINUS PINASTER.***

***NATIVE OF SOUTH OF EUROPE.***

**DESCRIPTION**—Growssixty to seventy feet high, with large horizontal, irregularly-spreading branches; having very long smooth leaves. Blossoms in April or May, producing rather long, pyramidal, acute cones, which afford perfect seeds in most seasons.

**SEED-BEARING TREES**—The most favorable will be met with on sandy, or warm and light loamy land; but on cold and wet clayey soils, they will produce ripe seeds, only in our hottest seasons.

**TIME OF RIPENING**—About Christmas, the cones may be first gathered.

**SIGN OF MATURITY**—These seeds will become more hard and substantial, by remaining on the trees till spring; when the cones will be completely dried, and the kernel more perfected.

**MODE OF GATHERING**—The cones of this tree are produced in the same manner as those of the Stone Pine, but far more numerous: they require to be collected in the same manner.

**CURING SEEDS**—On the cones being obtained dry, they may be kept in sacks, or put by in any thickness, until a convenient season for getting out their seeds; guarding against rats and mice.

**CLEANSING SEEDS**—These seeds will readily be obtained on boring them with a narrower gimblet,

than that used for cones of the Stone Pine ; afterwards split them, by which they may be found in considerable quantities, employing children to pick them out.

**CLEANSING SEEDS**—They may be easily separated from the wings of the seeds and other refuse, on being dressed or run down before a steady wind.

**PRESERVING SEEDS**—Put them into boxes or bags, in a dry situation secure from vermin, until they are required.

**SEASON AND METHOD OF SOWING**—April is the proper month ; sowing them on the same soil as Stone Pine, moderately thick, covering the seeds near half an inch deep.

These seeds not always ripening, collect them in more considerable quantities in a warm season, which will afford a certain future supply of sound seeds, freely growing when two years old ; which will be best preserved by remaining in the cones unbroken.

**TRANSPLANTING**—February and March are the most favorable months ; being somewhat of shy growth in any other than a light sandy soil, bed them in that which is similar as possible to that in which they have been sown, one inch apart, at one year old ; as in transplanting Baum O' Gilead Fir.

## **PLANE; *PLATANUS OCCIDENTALIS*.**

**NATIVE OF THE LEVANT.**

**DESCRIPTION**—Rises with a very straight, smooth; branching stem, to a great height; hath palmated leaves, six or eight inches long, and as much broad, divided into five large segments. In April or May, the flowers appear on long pendulous *pedunculi*, each sustaining a round, ruff, hard ball; on which are numerous pale-brown, downy seeds, which seldom ripen in England, and only in our hottest seasons.

**SEED-BEARING TREES**—Are principally found growing singly, in parks, lawns, or extensive pleasure grounds; sometimes intermixed with other trees of large growth.

**TIME OF RIPENING**—Towards the latter end of November, these seeds will have acquired their best state of maturity; and early in December they will be separated by winds from the balls to which they are attached, if not previously gathered.

**SIGN OF MATURITY**—On being ripe, are of a pale-brown complexion.

**MODE OF GATHERING**—They require to be plucked from the trees with the hand, having ladders placed round, or climbing into the trees, from the peduncles by which they hang; as if they are suffered to fall, the exterior of the balls will break,

and seeds disperse on reaching the ground, whence they cannot readily be collected.

**CURING SEEDS**—From their being procured from the trees at a late and moist season of the year, it will require some attention to preserve them dry; which will be best effected by laying them not more than two or three inches thick, on the floor; turning them over every day, and leaving them light as possible.

**SEASON AND METHOD OF SOWING**—January is the most favorable month, and a soft boggy soil, inclining to sand, will prove the most friendly. On the beds being raked even as possible, completely cover the surface with these seeds, earthing them over not more than a quarter of an inch thick, finely sifting the soil.

**TRANSPLANTING**—In the season and manner of Common Alder.

There are two other species of this tree; the Oriental and Spanish Plane; affording their balls in the autumn season, but more sparingly; rarely producing seeds of growing quality in England.

## POPLAR, BLACK; *POPULUS NIGRA*.

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—Rises with a straight trunk, and full branchy head, to considerable height; having heart-shaped, acuminate, serrated, light-green leaves. Flowers in April, producing long and slender catkins, which afford fully ripe seeds in all seasons.

**SEED-BEARING TREES**—Are to be found in cold woodland, and marshy situations; remarking that, where these trees increase by roots, they will generally be found growing in greater quantities together.

**TIME OF RIPENING**—The first or second week in May, the seed-pods attached to the catkins, will assume a yellowish complexion; when the seeds approach to maturity.

**SIGN OF MATURITY**—On the down first appearing in the capsules or seed-pods, they will be in proper condition to gather. By the warmth of the Sun, in one or two days the entire crop of seeds will be disseminated.

**MODE OF GATHERING**—This variety being of tall and somewhat erect growth, its seeds can only be obtained, by climbing into the trees, when the slender branches affording seeds, may be cut away to fall to the ground, and the seeds stripped off on clothes; or where the situation is open from the trees growing singly, they may fall on the grass, clear-



ing away the seeds, and putting them immediately into sacks or bags : but on no account, suffer them to remain therein more than a few hours, or they will heat to spoil.

**CURING SEEDS**—Spread lightly the catkins, about four inches thick, on the driest floor and in the most airy situation; turning them over twice every day : from which, on their becoming dry, minute-green seeds will shed out upon the floor, and may be swept together every evening after the first day. They require to be sown at farthest on the next morning.

**SEASON AND METHOD OF SOWING**—A soft black bog soil, finely sifted, will alone prove friendly to the growth of these minute seeds ; and of which, the beds whereon they are sown require to be formed. They will be found to grow, only on their being sown immediately after shedding from the seed-pods, and at farthest early on the following day ; they will require to be strewed thickly on the smoothest surface, finely sifting over them the smallest quantity possible, of the same light soil, not more than one eighth of an inch deep, keeping the ground constantly moist, but not wet ; performing this business by light sprinkling with the hand, or a small bunch of naked twigs : on being thus sown, in a few days, they will appear each with two very small pointed leaves, rising in the greatest abundance ; but on the seeds becoming dry before they are sown, few young plants will rise. Immediately on their being sown and moderately watered by sprink-

ling, apply the closely wattled hurdle to exclude as much as possible all drying air as well as sun.

The young plants, on their first appearing, must be carefully preserved from the ravages of snails; by destroying them at night or in moist weather, as watering the beds will attract them.

By this easy mode of propagation, new varieties, and consequently valuable acquisitions may be obtained, which is the only method practicable.

**TRANSPLANTING**—As Common Alder, on the plants being two years old: from being sown late in the season, and of very slender growth, they will be insufficient to transplant the first season.

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## POPLAR, LOMBARDY; *POPULUS DILATATA*.

*NATIVE OF ITALY.*

**DESCRIPTION**—Hath a very straight and tall stem, branching erectly, forming a fine regular head, and grows to considerable height: having large, roundish, acuminate, smooth, light-green leaves. Flowers in April, producing small reddish colored catkins; which afford ripe seeds less plentifully than the other varieties.

**SEED-BEARING TREES**—Are generally to be found in plantations, where the situation is some-

what moist and low, and frequently in rows, as by ditches, &c.

**TIME OF RIPENING**—This variety, commonly produces ripe seeds early in May.

**SIGN OF MATURITY**—The capsules assume a pale yellow complexion; after which the down will shortly appear, when the seeds will be ready to gather.

**MODE OF GATHERING**—From the trees being of great altitude, and growing erect, with few lateral branches, it will be difficult to obtain these seeds in considerable quantities, and only by climbing into the trees.

**CURING SEEDS**—As is directed, under the variety of Black Poplar.

**SEASON AND METHOD OF SOWING**—Same as Black Poplar.

**TRANSPLANTING**—As Common Alder, on the plants being two years old.

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## POPLAR, TREMBLING; *POPULUS TRE-MULA*.

**INDIGENOUS TO BRITAIN.**

**DESCRIPTION**—Hath an upright trunk and branchy head; together of inferior growth: with roundish leaves, indented into angles, and smooth on both

sides, having a constant trembling motion. Blossoms in April, frequently affording very numerous moderate sized catkins, amply furnished with perfect seeds.

**SEED-BEARING TREES**—Will be chiefly found, growing on cold woodland soils, where they increase much by roots; that in such situations, proper trees are sometimes very abundant.

**TIME OF RIPENING**—Affords its seeds more late than most other varieties, being seldom ripe until the second or third week in May.

**SIGN OF MATURITY**—Like other Poplar seeds, these require to be gathered on first appearance of down bursting from the capsules.

**MODE OF GATHERING**—These trees being of humbler growth, their seeds can be more readily collected; but in tolerable quantities, only by cutting away the extremities of branches bearing the seeds; which may be effected, either by placing ladders round, or climbing into the trees, and stripping the fallen branches on cloths laid beneath to receive them.

**CURING SEEDS**—As directed under the article Black Poplar.

**SEASON AND METHOD OF SOWING**—Same as Black Poplar.

**TRANSPLANTING**—As Common Alder, on the plants being two years old.

## **POPLAR, WHITE; *POPULUS ALBA*.**

***INDIGENOUS TO BRITAIN.***

**DESCRIPTION**—Rises with an upright straight trunk, and regular branchy head, and is of great height; having a whitish smooth bark, roundish leaves, of dark-green color above, with whitish down underneath; frequently blossoms in March, and produces its numerous long catkins, well-stored with seeds of growing quality, more early than others of the Poplar Tribe.

**SEED-BEARING TREES**—As natives of bogs and marshes, these trees are common in such situations; and also on cold woodland soils, where they are oftentimes in great abundance; increasing freely, by their spreading roots.

**TIME OF RIPENING**—Early in May, when the season is fine and warm, these seeds may be expected to mature.

**SIGN OF MATURITY**—On the capsules becoming yellow, and down first appearing, they will require to be gathered.

**MODE OF GATHERING**—These trees being very large, with widely-spreading heads and replete with branches, the seeds may be easily collected either by climbing into, or placing ladders round the trees, as directed for other Poplars.

**CURING SEEDS**—As is directed under the article Black Poplar.

**SEASON AND METHOD OF SOWING**—Same as Black Poplar.

**TRANSPLANTING**—As Common Alder, on the plants being two years old.

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**SERVICE, MANURED ; *SORBUS DOMESTICA*.**

***INDIGENOUS TO BRITAIN.***

**DESCRIPTION**—Hath an erect stem, growing about fifty feet high ; with a bark somewhat brown, and the young shoots covered with mealy down, in summer ; producing large clusters of white flowers, at the sides and ends of the branches, in May or June ; which are succeeded by large, fleshy, eatable fruit, of various forms, shapes and sizes, containing seeds ; but do not very freely ripen in other than warm seasons, and especially fine autumns, which fully perfect them.

**SEED-BEARING TREES**—Are sometimes to be met with in extensive orchards, and fruit grounds, by which an agreeable variety is effected ; and also in lofty ornamental plantations.

**TIME OF RIPENING**—In November, the fruit of all the varieties will be sufficiently ripe to gather.

**SIGN OF MATURITY**—These trees being of considerable height, it will be more easy to pick from

the ground, the fallen fruit containing these seeds ; which on becoming ripe, will be separated from the trees, by high winds.

**MODE OF GATHERING**—Where there is danger of the fruit dropping to the ground, being destroyed by swine, &c. place sheep-trays or hurdles round each tree, beneath ; collecting them together once a day, as they fall. Where the trees are of convenient size, they may be beaten off with poles ; but on no account gather them before the fruit begin to fall.

**CURING SEEDS**—Bury them in sand or earth, as directed for Holly Berries. If mice attack them, place traps near the heap.

**SEASON AND METHOD OF SOWING**—The seeds of all the varieties of the Service Tree, will require to be sown very early ; and soon as the ground can be prepared on the approach of spring : or from their early propensity to vegetation, they will be liable to injury, by sprouting before they are sown ; than which nothing is more prejudicial to a crop. Soft, rich, loamy soil, is as favorable as any which can be pointed out. The seeds will be best prepared for sowing, by breaking or rubbing to pieces the decayed fruit, in order to separate the seeds, as in Holly Berries, &c. by which they may be more regularly sown, performing this on a dry day, or, in a situation out of the weather ; as on the parcel becoming wet, it would be difficult to spread the seeds on the beds in the necessary order. On the beds being prepared, lay the kernels, and soil or sand

in which they have been intermixed, half an inch thick on the surface; and being spread even, cover the same nearly an inch deep, with soft soil, as that in which they are sown.

**TRANSPLANTING**—In the season and manner of Common Alder.

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## **SERVICE, WILD; *PYRUS TORMINALIS*.**

**INDIGENOUS TO BRITAIN.**

**DESCRIPTION**—Hath an upright, large, and very branchy head, spreading round; grows to the height of forty to fifty feet: with heart-shaped, septangular leaves, hoary underneath; and in May or June, produces its flowers at the ends of the branches; succeeded by clusters of large, reddish-brown, eatable berries, which ripen freely in common seasons.

**SEED-BEARING TREES**—Are more or less growing in woods, or forests, throughout England; and in some situations, particularly Northward, may be met with in plantations of considerable variety.

**TIME OF RIPENING**—In warm seasons, the fruit of this tree will be matured by the middle of October; but in wet autumns, not sooner than November.

**SIGN OF MATURITY**—On ripening, the berries



will assume a reddish-brown complexion : where the fruit is not in danger of being stolen, it will be beneficial that they remain upon the trees; until they begin to fall off.

**MODE OF GATHERING**—These trees fully grown being of lofty height, their fruit are only to be collected by climbing into them, or applying ladders round the lower part of the branches. From young trees, they will be most easily gathered by ladders, pulling or cutting off the bunches with sharp hooks.

**CURING SEEDS**—Bury them in sand, or light dry soil, as is directed for Holly Berries, stripping these seeds from the bunches before they are intermixed. Mice, disturbing them, may be caught in traps.

**SEASON AND METHOD OF SOWING**—As in Cultivated Service.

**TRANSPLANTING**—In the season and manner of Common Alder.

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## SERVICE, or WHITE BEAM; *PYRUS-ARIA*.

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—With an upright large trunk; dividing upward, into a branchy head: growing about thirty feet high. Having spots of mealy down on all the young branches, and oval serrated

leaves woolly and white underneath ; in May or June, producing large bunches of flowers at the ends of the branches ; which are succeeded by clusters of red berries containing the seeds, which ripen in most seasons.

**SEED-BEARING TREES**—Are frequent in plantations of large and lofty growth, to effect diversity ; and this tree is a common inhabitant of the woods, in some parts of England.

**SIGN OF MATURITY**—On the berries becoming somewhat soft, and inclining to fall from the trees, they may be collected.

**MODE OF GATHERING**—Their clusters being produced at the extremities of the branches, may be collected, as has been directed for Mountain Ash Berries.

**CURING SEEDS**—Bury them in sand or earth, as directed for Holly Berries ; it will disturb them, place traps near.

**SEASON AND METHOD OF SOWING**—As in Cultivated Service.

**TRANSPLANTING**—In the season and manner of Common Alder.

## **SYCAMORE; *ACER PSEUDO PLATANUS*.**

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—Of very luxuriant growth, having a large upright trunk, with brown bark; branching into a very considerable head; furnished with leaves divided into five lobes, having the edges unequally serrated. Flowers in May, and produces ripe seeds on a racemus, or long cluster, which always ripen freely.

**SEED-BEARING TREES** — Are almost general throughout England, and frequent in church yards and parks, and sometimes vistas and avenues are formed of them.

**TIME OF RIPENING**—In warm and forward seasons they will be ready to gather early in October but in cold autumns, not sooner than November.

**SIGN OF MATURITY**—On becoming ripe, the kernel will be somewhat hard, and the husk or shell enclosing the same of dark-brown color. Where these seeds are suffered to hang long upon the trees after being ripe, they will be in extreme danger of being blown away by boisterous autumnal winds.

**MODE OF GATHERING**—The strongest seeds are produced on young and small trees; which, from their convenient size, are to be preferred, placing ladders against the lower branches; when the bunches within reach, may be plucked off by

hand, and put into bags: but from larger trees, when they are fully ripe, they may be beaten off with long and light poles, to fall on cloths or mats laid beneath; or on dry clean-mown ground. In gathering by hand, when breaking away the branches bearing seeds can be practised, and the bunches thrown down to pick off seeds, they will be sooner and more cheaply obtained; but on large quantities being required, beating the trees is to be preferred: the leaves being then shed, will not incommode the seeds.

**CURING SEEDS**—These seeds, when ripe, being green, and less hard than many others, require some room and time to dry; lay them not more than six inches thick, turning them over once a day, three or four weeks. No vermin will eat them.

**SEASON AND METHOD OF SOWING**—The middle of February will prove sufficient time to sow them, in manner and on same soil as pointed out for Ash Keys, as they will alike grow in common light earth which is tolerably good.

**TRANSPLANTING**—In the season and manner of Common Ash.

We have one variety of Sycamore, producing variegated leaves, and which in fine seasons, furnishes ripe seeds, affording different variegations.

## WALNUT, COMMON; *JUGLANS REGIA*.

*NATIVE OF PERSIA.*

**DESCRIPTION**—Grows thirty to fifty feet high, branching into a very large spreading head, adorned with pinnated leaves. Flowers in amentums and clusters, in April or May; fully maturing their fruit early in autumn, except in cold and wet seasons.

**SEED-BEARING TREES**—Are common in church yards and orchards; also other enclosed grounds contiguous to towns and villages.

**TIME OF RIPENING**—Late in September, early in October, or the middle of that month, is the common season of their ripening.

**SIGN OF MATURITY**—On becoming ripe, the outer cover or coat of this fruit will be discovered to crack; and on this breaking, the nut will fall to the ground.

**MODE OF GATHERING**—The common method of gathering walnuts is too well known to need description. As in Acorns, those which fall latest from the trees are to be preferred for sowing, being far superior to those beaten off.

**CURING SEEDS**—On being taken from the leam or coat, they will be best buried in dry sand, or cinder dust, as is directed for Holly Berries; taking care that they are placed secure, not only from rats and mice, but crows, which will sometimes attack them in very severe weather.

**SEASON AND METHOD OF SOWING**—Sow these seeds early as possible in January ; as on the kernels becoming dry, they will not be free to vegetate. They will succeed in the same soil, and on being sown in similar manner as the Common Horse Chestnut.

**TRANSPLANTING**—As Common Ash, with the exception of planting walnuts one foot apart in the rows, from their broad foliage.

There are several varieties of hardy walnut, ripening nearly together, which afford sound fruit in common seasons.

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## WALNUT, BLACK; *JUGLANS NIGRA*.

*NATIVE OF VIRGINIA.*

**DESCRIPTION**—Grows forty to fifty feet in height; having a very large trunk, and widely-spreading branchy head, with large pinnated leaves, in different varieties of spear-shaped, sawed lobes, terminated by an odd one. Blossoms in April and May, producing monoecious flowers, which are succeeded by rough, hard-shelled nuts, of different shapes and sizes, in the varieties; perfecting in England in warm seasons.

——, WHITE OR, HICKERY; *JUGLANS*  
*ALBA.*

*NATIVE OF VIRGINIA.*

**DESCRIPTION**—Rises to the height of about thirty feet, having pinnated leaves, differing according to the varieties; and each terminated by an odd one. Blossoms in April or May, producing monoecious flowers, which are succeeded by oval smooth nuts, with a whitish shell; ripening fully in our most favorable seasons.

**SEED-BEARING TREES**—The various species of Virginian Walnut, being much less general in this country, than the common sorts; these trees are rarely to be met with but in ornamental plantations of large growing trees, where they have been planted to afford diversity. All the varieties ripening their seeds in the autumn, as common walnuts, they may be collected and preserved in the same manner.

**SEASON AND METHOD OF SOWING**—Same as Common Walnut.

**TRANSPLANTING**—In the season and manner as Common Walnut.

## WILLOW, SILVER-LEAFED; *SALIX ALBA*.

INDIGENOUS TO BRITAIN.

**DESCRIPTION**—Grows to a considerable height and of large bulk, having smooth, pale-green shoots, long, spear-shaped, acuminate, sawed, silvery-white leaves, downy on both sides; producing long and slender catkins of flowers, in May or June, plentifully furnished with growing seeds in all seasons.

**SEED-BEARING TREES**—This tree is the common white willow of the brooks, usually growing by the sides of rivers and other rivulets of water, and are to be met with near most towns and villages.

**TIME OF RIPENING**—About the middle or latter end of June, in common seasons, these seeds will be in a sufficient state of maturity to collect.

**SIGN OF MATURITY**—On the seeds becoming ripe, the capsules or seed pods will assume a yellowish complexion; and on the Down appearing as in poplars, they will be in proper condition to gather.

**MODE OF GATHERING**—They will be most easily collected, by pulling down the branches with long wood hooks, on the outsides of the trees: from the great pliability of the boughs, those bearing seeds will be easily obtained; when, strip off the seed pods from the branches downward. From the trees being at that season full of leaves, it will be impossible to collect them, speedily, clean; that on



taking the entire quantity away, it will be more easy by children to pick out the leaves, which would otherwise prevent the capsules becoming properly dry, so soon as necessary.

**CURING SEEDS**—As is directed for Black Poplar.

**SEASON AND METHOD OF SOWING**—The same as in Black Poplar.

The young plants on first appearing, which rise in the manner of Poplars, will require to be preserved in the same way, from injury by snails.

**TRANSPLANTING**—As Common Alder, on the plants being two years old.

Of the willow, are two other varieties of considerable magnitude in their bulk, rising to a very great height, and of British growth; the broad-leaved, red-twigged, producing ripe seeds a week or fortnight earlier in June; and also of the white or silver-leaved, ripening its seeds late in July, both which are residents near brooks, or in marshy situations, freely producing ripe seeds.

By this easy mode of propagation by seeds, valuable acquisitions may be obtained in new varieties, and which is the only method practicable.

## **YEW, COMMON; *TAXUS*.**

*INDIGENOUS TO BRITAIN.*

**DESCRIPTION**—Grows with an erect trunk, and spreading branchy head, full forty feet high ; very closely furnished with small narrow, dark-green leaves, growing near together ; and small, yellowish apetalous flowers, produced in clusters at the sides of the branches ; which are succeeded by small red, pulpy, juicy berries, containing the seeds.

**SEED-BEARING TREES**—Are not unfrequent in old church yards ; but more common near to ancient mansions.

**TIME OF RIPENING**—November is the common month in which these seeds arrive at maturity, when they must be carefully sought after ; as on being fully ripe, the entire crop, in many situations will be devoured by various birds in a few days, or beat off the trees by rain, and boisterous winds.

**SIGN OF MATURITY**—On discovering that the berries incline to separate from the branches, they will be ready to gather.

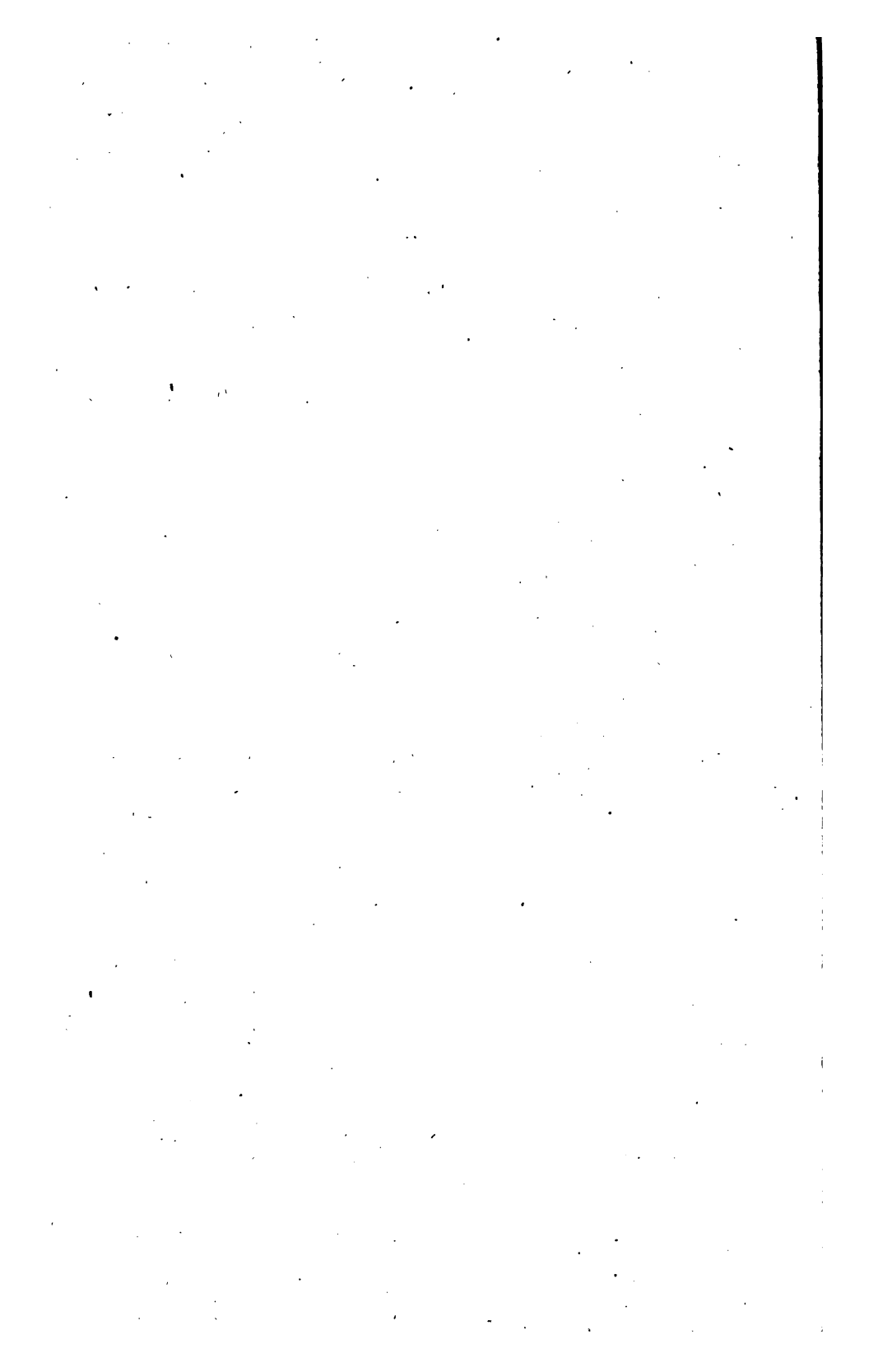
**MODE OF GATHERING**—Where the crop is plentiful, they will be most easily collected, by laying cloths or mats round the full circumference of single trees, beneath ; or on the sides of hedges, beating off the seeds, gently, with light poles.

**CURING SEEDS**—Bury them in dry sand or earth, as directed for Holly Berries ; with this difference,

that these berries consisting of softer pulp, will require one third more sand or soil to be intermixed ; in order to preserve them from becoming rotten.

**SEASON AND METHOD OF SOWING**—In all respects as Common Holly.

**TRANSPLANTING**—In the season and manner of Common Holly.



**HARDY EVERGREEN, AND DECIDUOUS**  
***Ornamental Trees & Shrubs,***

**AFFORDING RIPE SEEDS IN**

**GREAT BRITAIN,**

**IN PROPORTION AS**

**SEASONS, AND SITUATIONS ARE FAVORABLE.**

The different modes of Transplanting from the Seed Beds, having been accurately described under various FOREST TREES, we consider it unnecessary minutely to subjoin such particulars to each of the following articles; in general, recommending to bed out the young plants, except in those of most free growth, as *Virginian Acacia*, *Laburnum*, &c, whether one or two years old, when four to six inches in height: planting those which are *Deciduous* in the Winter Months, and such as are *Evergreen*, in the seasons pointed out.

**HARDY EVERGREEN, AND DECIDUOUS**  
***Ornamental Trees & Shrubs,***

*&c. &c.*

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**ACACIA, FALSE; *ROBINIA*.**

**1. VIRGINIAN WHITE-FLOWERED.—*N. AMERICA*.**

*Description.* Hath a strong stem, branching near forty feet high, armed with strong spines; large, long, pinnated-leaves in oval lobes, having prickly stipulae and long pendulous, racemous clusters of white papilionaceous flowers, very odoriferous, appearing sometimes in May, but more frequently in June; succeeded by smooth seed-pods well furnished with ripe seeds in favorable seasons; but not sooner than November: when the seed-pods will become black, frequently remaining on the trees until the middle of December. Collect them by ladders, climbing into the trees and pulling off the bunches; in doing, which caution is requisite, from the extreme brittleness of the wood. Lay the bunches thinly, and in frosty weather or early in the Spring, on a dry day thrash them out; cleansing them by a

sieve sufficient to retain the husks and stalks, letting through the seeds. As they will not soon shell out by hanging on the trees, they require to remain in order to become ripe, as long as the season will admit; and if fully matured and well preserved, will grow freely the second Spring.

## 2. SIBERIAN YELLOW-FLOWERED.—*SIBERIA*.

*Description.* Grows with a shrubby stem, branching full ten feet high; having a abruptly pinnated-leaves of five or six pairs of oval lobes, and simple unbranching pendunculi, sustaining yellow flowers in April or May; freely ripening its seeds in September on the summer being warm, or in October in late seasons. Collect them on the pods becoming dry; and cleanse them as directed for Virginian white-flowered.

*Sowing Seeds.* March is the fittest month for this business; as on being more early sown, the young plants of each sort being tender, will be liable to injury from late frosts. Sow them in rich sandy soil or soft loamy earth moderately thick, covering the seeds with very light soil as in Baum O'Gilead Fir, little more than a quarter inch deep. From the seeds being sown less early than some others, it will be necessary to afford them shade, by the wattled hurdle, to protect the young plants from violent sun, and occasionally to afford them water in dry



seasons in which the beds will, with little trouble be readily kept moderately moist. From their late growth, they may be safely transplanted in March and April, especially in backward or moist seasons.

ALATERNUS ; RHAMUS-ALATERUS.

*Description.* Rises with a shrubby upright stem, branching very abundantly from twelve to fifteen feet in height ; the branches having smooth, greenish and reddish bark ; chiefly garnished with oval, stiff, shining, serrated-leaves which are evergreen, placed alternately ; and at the axillas, produces in April and May greenish flowers in clusters ; succeeded by round, softish, red berries ; their seeds freely ripening in favorable seasons.

- |                                    |               |
|------------------------------------|---------------|
| 1. COMMON BROAD-LEAVED.            | S. OF EUROPE. |
| 2. SMALLER-LEAVED.                 | _____         |
| 3. BLOTCHED BROAD-LEAVED.          | _____         |
| 4. NARROW JAGGED-LEAFED.           | _____         |
| 5. GOLD-STRIPED NARROW-LEAVED.     | _____         |
| 6. SILVER-STRIPED NARROW-LEAVED.   | _____         |
| 7. YELLOW-BLOTCHED BROAD-SERRATED. | _____         |
| 8. WHITE-BLOTCHED NARROW-SERRATED. | _____         |

The five first-mentioned, being hardy, ripen their seeds in considerable quantities on the seasons proving favorable ; and those which are more

tender, as the three last, on being confined to walls in sunny exposures, will also afford sound growing seeds, but in smaller proportion ; all ripening in October, which, in many situations, if not secured from birds by covering the trees with nets, &c. will be wholly devoured in a short time. On the berries becoming of a deep red colour, and inclining to fall from the trees, they will be fit to gather by stripping off with the hand : immediately after which, intermix the sorts separately with sand, &c. as directed for Holly Berries, and bury them in the earth ; by no means suffering them to remain in quantities without soil or sand, &c. to prevent the kernels being injured by heat.

*Sowing Seeds.* Early in the second Spring after gathering, sow them in the manner and season directed for Common Holly ; first rubbing hard the whole between the hands, to separate the seeds. Apply the wattled hurdle to protect the young plants from drought and scorch of sun, and transplant them as Holly or Cypress, in March or April.

The three last-mentioned varieties, being more scarce and delicate, it will be easy to sow their seeds on the first Spring, immediately after gathering, in pots of fine and soft soil ; which being placed under sound hand glasses, in a South aspect, many plants may be expected to rise the first season ; and the remainder will appear the following Spring. In March or April, transplant them as Cedar of Libanus, and other young trees raised from seeds in pots.

## ALDER TREE ; *BETULA-ALNUS*.

*Description.* Varieties of the Common Alder flowering in June and July, but of more humble growth ; producing ripe seeds in favourable seasons.

- |                              |                    |
|------------------------------|--------------------|
| 1. LONG AND JAGGED-LEAVED.   | <i>N. AMERICA.</i> |
| 2. HIRSUTE, OR HAIRY-LEAVED. | <i>EUROPE.</i>     |

Late in October, or early in November, the cones will become hard, dry, and incline to expand ; when the seeds will be ready to gather. Collect and cleanse these seeds as the Common Alder, recollecting that the cones are smaller and the seeds somewhat less free to ripen.

*Sowing Seeds.* Sow them in the season and manner directed for Common Alder, affording the young plants protection from the sun by the wattled hurdle.

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## ALDER, BERRY-BEARING ; *RHAMNUS-FRANGULA*.

*BRITAIN.*

*Description.* Of shrubby growth, with numerous smooth branches ; having oval, entire leaves, and

greenish flowers, in April or May ; succeeded by round, black berries ; ripening freely in all seasons.

In September, on the berries becoming black, the seeds will be fully ripe ; when it will be easy to collect them, by stripping them off the branches with the hand. Immediately on their being gathered, preserve them in sand, cinder dust, or light dry soil, as Holly Berries, until the following Spring.

*Sowing Seeds.* The young plants being extremely hardy, the seeds require to be sown in January, or early in February ; covering them with common light earth half an inch deep. No protection by shade will be necessary.

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## ALMOND, FRUIT-BEARING; *AMYGDALUS*.

*Description.* With foot-stalked, sawed leaves ; and solitary flowers, of various colors according to the varieties, in March or April, closely sitting to the sides of the branches ; commonly producing ripe seeds.

1. REDDISH-FLOWERED BITTER-FRUITED. *BARBARY*.
2. PALE-FLOWERED. \_\_\_\_\_
3. WHITE-FLOWERED. \_\_\_\_\_

On becoming ripe in September or October, the coat covering the fruit of each variety, will crack, as the Walnut; and falling to the ground, will require to be picked up. In this manner they will be readily gathered, without injury by shaking or beating the trees, whose branches are brittle.

*Sowing Seeds.* On being wholly collected together, sow them in the Autumn, in the manner of Horse or Sweet Chesnuts; preferring soil that is rich, but soft and dry, or the young plants will be subject to gum. Thus early sown, they will chiefly rise the first Spring.

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## ARBOR VITÆ, OR, TREE OF LIFE; *THUYA*.

### 1. COMMON BRANCHING AMERICAN. CANADA.

*Description.* Grows with a large straight stem, branching very irregularly, forty feet high, somewhat straggling; garnished with very small imbricated leaves of dusky green color, having flowers at the sides of the young branches, appearing in May; succeeded by very small smooth cones, containing somewhat oblong seeds; which in open and warm situations, will be fully ripe in September, on the cones becoming brown and dry, inclining to expand; but in more shady places,

will remain on the trees until November, commonly ripening.

On the cones being spread to dry in the sun, their seeds will be readily obtained by moderate thrashing, and fine sieves.

## 2. SWEET-SCENTED BRANCHING. *N. AMERICA.*

A variety of the above, differing chiefly in the smell of the leaves.

## 3. UPRIGHT CHINESE, OR ORIENTAL. *CHINA.*

Hath a straight erect stem, growing twenty feet or more high, branching upwards, very closely ornamented with smaller flat leaves of bright green color, imbricated; with flowers in May at the sides of the young branches, succeeded by rugged cones containing the seeds, which ripen freely in favourable seasons in October or November. On the cones becoming hard and dry, they may be gathered by hand; but these seeds will be much benefitted by remaining on the trees through the Winter, gathering them in March, before they expand. Expose them a few days to the full sun, previous to sowing, when the seeds may readily be obtained by breaking the cones in a small mill; or by hard thrashing in a sack, afterwards applying convenient sieves.

*Sowing Seeds.* The two first varieties being of most free growth, may be sown in the open ground in

February, or early in March, in the same soil and manner as directed for the seeds of fir trees at large; protecting them from the sun by the watted hurdle. The seeds of the Chinese being less frequently perfected, and the plants of greater value, it will be advantageous to sow them in pots of similar soil, covered as the former, and placing them under sound hand-glasses, in a south aspect, which will materially assist the vegetation of the less ripe seeds; and by which young plants will be obtained in greater abundance and progress, than on their being sown in the common ground. Transplant the former in the months of September and March, and the latter as Cedar of Libanus in March or April.

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### BAY TREE; *LAURUS NOBILIS*.

ITALY.

*Description.* With an upright stem, branching on each side, and growing more than twenty feet high, with stiff, spear-shaped, evergreen leaves; having small yellow flowers in April or May, which are succeeded by red berries; commonly affording ripe seeds after a warm summer.

In favourable seasons and warm situations, these seeds may be expected to ripen in November; and where they can be effectually secured from birds,

will be better perfected by remaining on the trees until the spring, which, on being timely sown, will rise the first year

*Sowing Seeds.* March is the proper month. These seeds not being fully matured in all seasons, it will be a great advantage to sow them in pots, placed under sound hand-glasses, in a full south exposure; and in the same soil as directed for Cedar of Libanus. Transplant them in March or April, into pots, as the above.

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### BERBERRY TREE; *BERBERIS*.

*Description.* With a shrubby stem growing near ten feet high, armed with triple thorns; small oval serrated leaves, and yellow flowers in long clusters from the sides of the branches, appearing in May, succeeded by small, long, and thin berries, of various colours; always ripening.

- |                              |                 |
|------------------------------|-----------------|
| 1. COMMON RED STONE-FRUITED. | <i>BRITAIN.</i> |
| 2. CANADIAN WHITE-FRUITED.   | <i>AMERICA.</i> |

Towards the latter end of September, the berries of the latter will become red; and on the earliest discovery of birds attacking them, or that they fall to the ground, they will be sufficiently ripe to gather. The latter, which is less free to



ripen in England, seldom matures its seeds until late in October.

The berries of each, commonly hanging on the trees in numerous bunches, will easily be stripped off in considerable quantities by hand; having on strong gloves to avoid inconvenience from the thorns.

On being collected, preserve them in manner of Holly Berries, until the second spring, when they will require to be sown.

*Sowing Seeds.* In February, from their extreme hardness, they may be sown on almost any common light soil; preparing the seeds for sowing, as Holly Berries, and without protection by shade.

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## BLADDER NUT; *STAPHYLÆA*.

### 1. EUROPEAN FIVE-LEAVED.

*BRITAIN.*

*Description.* With an upright, smooth, shrubby stem, branching eight to ten feet high; ornamented with pinnated-leaves, having long, pendulous bunches of white flowers in May; which produce large bladder-shaped seed pods, containing roundish, nut-like seeds, ripening in all seasons.

### 2. VIRGINIAN THREE-LEAVED.

*N. AMERICA.*

*Description.* Producing a stem like the former,

garnished with three-lobed leaves, and at sides of the branches, long hanging bunches of white flowers, appearing in May; succeed by large inflated capsules, containing roundish hard seeds; commonly ripening.

In October each variety will afford sufficiently ripe seeds, except in very unfavourable seasons; but it is requisite, that these large berry-like seeds remain on the trees a sufficient length of time to become ripe and full; or they will be found to shrivel, especially on being kept out of the ground.

*Sowing Seeds.* By sowing them soon as they are gathered, the young plants will generally rise the first spring: and being of strong growth, will not require shade. Cover the seeds an inch and half deep.

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## BLADDER-SENA; *COLUTEA*.

### 1. COMMON BLADDER-SENA.

FRANCE.

*Description.* With an upright woody stem, and large branching heads ten to twelve feet high; with winged-leaves from the sides of the branches; and numerous small clusters of pale-yellow papilionaceous flowers, appearing in June and July; which are followed by bladder-like pods, well filled with dark-coloured seeds; ripening freely.

In October or November, on the seed pods becoming brown and dry, the seeds will be fully grown and ready to gather; when, with the hand, strip them off the trees.

2. **POCOCK'S TREE.**

**ITALY.**

*Description.* Hath an upright, whitish stem, branching six or seven feet high; winged leaves, and deep-yellow, papilionaceous flowers, throughout the summer; with seeds sparingly produced.

These seeds commonly ripen in October. When the pods are become of whitish-brown complexion, collect them as the former.

3. **ORIENTAL TREE.**

**LEVANT.**

*Description* Having a woody stem branching six feet high; winged leaves, and blood-coloured yellow-spotted papilionaceous flowers in June and July; affording a moderate supply of sound and ripe seeds in October, which require to be gathered as the former.

All the varieties of Sena, afford their seeds in bladder-like pods; they will be best obtained by children opening them during the winter season.

*Sowing Seeds.* Each of the above being very hardy and of liberal growth, may be sown in February or March, covering the seeds not more

than half an inch deep, and without temporary shade.

**4. ETHIOPIAN, SCARLET FLOWERED.      THE CAPE.**

*Description.* Producing an erect stem, with upright branches from the sides, growing three or four feet high; with pale green, winged leaves, and at the upper part of the branches numerous small branches of bright, scarlet, papilionaceous flowers in June and July, producing large pods with many seeds, in common seasons.

These seeds vary in the time of ripening, from September to November, according to the age of the plants. It will always be best partially to select the pods of ripe seeds, as they become brown or dry. The seeds may be picked out as the former.

*Sowing Seeds.* These plants being somewhat delicate when young, their growth will be abundantly promoted by sowing the seeds in pots of soft soil, in March, as directed for Chinese arbor vitæ; covering the seeds not more than half an inch deep. Seedling plants of scarlet colutea, being of very free growth, will require to be transplanted early in the first summer.

Soon as the young plants incline to advance, it will be necessary to tilt the glasses on each side, by slate or thin stones, in order to admit the air to strengthen them; or they will soon become weak, On being two or three inches high, they will re-

quire to be transplanted, by placing the largest of the young plants round the rims of pots of any convenient size, furnished with similar soil to that in which they have been sown, evenly within two inches of the top ; and place the plants somewhat aslope against the sides, one inch apart, which being done, fill the pot to the rim with earth, making even the surface, and taking care to perform the above within doors or in shade, to prevent the roots becoming dried by sun and air. On being planted, water them copiously by sprinkling, as in sowing ; and on the leaves of the plants becoming dry, replace the pots under hand glasses on surface of the ground, on a North Border, or on the North side a wattled hurdle without covering the glasses ; when on an evening, remove them to an East aspect, first watering them as before, and plunging the pots to their rims in the ground, closely stopping the glasses at the bottom in each situation. Should the first or second day prove hot, shade them by a mat or pease haum lightly spread over the glasses, from eleven to near two o'clock, when remove the covering ; and in about a week young shoots will form at the top of the plant, which on becoming about an inch in height, the glasses will require to be tilted five or six days to admit air, by degrees ; when they may be taken away.

## **BOX TREE; *BUXUS*.**

### ***BRITAIN.***

*Description.* Hath a strong woody stem, dividing into numerous branches, growing near twenty feet high; producing numerous flowers in April, and many shining black seeds in oblong capsules; always ripening.

- 1. UPRIGHT BROAD GREEN-LEAVED.**
- 2. NARROW GREEN-LEAVED.**
- 3. GOLD STRIPED-LEAVED.**
- 4. SILVER BLOTCHED-LEAVED.**
- 5. DWARF CURLED BLOTCHED-LEAVED.**

The varieties of this tree, differing chiefly in the form and colour of their leaves, all ripen their seeds in September, in moderately warm seasons; which may be known by the small Cones containing them, becoming brown and dry; which on inclining to expand, the seeds will require to be gathered. When the seeds may have been shed in sunny exposures, it will be proper to look after others in more shady situations; where they will be found to ripen later. The best method to obtain them is by children picking them off the trees, and thrashing the pods with a common flail, either in a bag or on a dry floor.

*Sowing Seeds.* These plants being naturally very

hardy, their seeds require to be early sown, which may be performed in February, soon as the season will admit; when sow them as Holly Berries, and protect them in the same manner from violent sun, by the wattled hurdle; recollecting that the young plants will rise the first spring. Transplant them in September, March, or April, in manner of Hollies.

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### BUCKTHORN, COMMON; *RHAMNUS*.

#### BRITAIN.

*Description.* Grows twelve to fourteen feet high, branching irregularly, and armed with sharp spines; having smallish, spear-shaped leaves, producing at the sides of the branches, clusters of small greenish flowers, in May or June; affording round, soft, black berries, fully ripe in all seasons.

November is the common season in which they ripen; when they will require to be gathered before the heavy rains and winds, common in that month, by which they will be beat from the trees. It will be easy to strip them off in considerable quantities by hand, on pulling down the branches with hooks. These seeds will not rise the first spring; and on being buried, from the great quan-

tity of moisture which the berries contain, it will be requisite that the quantity of dry soil intermixed with them be not less than two-thirds; the more effectually to prevent decay by heat, until the season of sowing.

*Sowing Seeds.* Early in February is the best season. As each berry contains two seeds, they may be sown more thinly than some others; covering them not more than half an inch deep: and being hardy, and of free growth, will require no protection by shade.

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## CHERRY-BIRD; *PRUNUS-PADUS*.

### 1. COMMON BIRD-CHERRY.

BRITAIN.

*Description.* Grows twenty feet high, with a spreading head; producing large, oblong, serrated leaves, and long loose clusters of white flowers in April, succeeded by round black fruit, ripening in all seasons.

Early as July or August, these fruits will be ripe. Gather them by hand, or beat them from the trees on becoming black, and when first they incline to fall off. Immediately preserve them in dry earth as other fleshy berries, recollecting that they will rise the first spring.



**2. VIRGINIAN.****N. AMERICA.**

Rises near thirty feet in height, with very branchy head ; dark purplish bark ; and oval serrated leaves, with long clusters of white flowers appearing in May and June, succeeded by small, round, black berries.

They will arrive at their full growth in October, when they may be readily stripped from off the trees by hand as the former ; preserving them until the season of sowing in the same manner.

**3. CANADIAN DWARF.****N. AMERICA.**

Grows not more than five feet high, having many horizontal and smooth branches ; broad, spear-shaped, rough, downy leaves ; and long clusters of white flowers appearing in June, affording small, round, berry-like, black fruit.

The fruit of this tree will not ripen sooner than the latter end of October in common seasons ; which require to be gathered and preserved as the two former.

*Sowing Seeds.* The seeds of each variety of the Bird Cherry, on being properly preserved, will grow the first Spring. Early in February sow them in any common light soil, about an inch deep, and without shade.

## **CHERRY, CORNELIAN; *CORNUS MASCULA*.**

**AUSTRIA.**

*Description.* Hath an upright tree-stem, twenty feet high, branching to form a large head; garnished with oblong leaves, and small umbels of yellowish green flowers, appearing in February and March; succeeded by small, red, roundish, acid fruit; always ripening.

Late in August or in September, the fruit will be ripe; collect and preserve them as the Bird Cherry, until the following Spring, when they will require to be sown.

*Sowing Seeds.* In the season and manner of Bird Cherry.

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## **DOGWOOD; *CORNUS*.**

**1. COMMON BLOODY-TWIGGED.**

**BRITAIN.**

*Description.* With an upright stem, branching more than twelve feet high; reddish shoots, and oblong pointed leaves; producing umbellate white flowers in June, at the end of the branches; succeeded by small black berries, which always ripen freely.

About the middle of October, they are generally ripe to gather; when the berries will be black,

affording a pale green liquid ; and will fall from the trees. They may be easily collected in considerable quantities by hand, as the Buckthorn. Preserve them in the same manner, until the second Spring for sowing.

**2. WHITE-BERRIED PENNSYLVANIAN. N. AMERICA.**

With an upright large-growing stem, branching twelve to fourteen feet high ; with strong blood-red shoots, and large oblong oval leaves whitish underneath ; and large umbels of white flowers appearing in July ; producing white berries, which mature only in our warmest seasons.

These seeds usually ripen in November, but are not produced so freely as the former. Gather and preserve them in the same manner, until the second Spring for sowing.

**3. VIRGINIA NARROW LEAVED. N. AMERICA.**

*Description.* Having a tree stem, fourteen feet high, and red shoots, ornamented with large heart-shaped leaves, and the branches terminated by umbellate white flowers in July ; affording dark red berries, not always ripening in England.

The seeds ripening not sooner than the latter end of October, require to be collected in same manuer as the former, and preserved until the second spring.

**4. FEMALE NARROW-LEAVED. N. AMERICA.**

*Description.* Produces an upright tree stem, growing ten feet high, having very red shoots,

spear-shaped leaves, and branches terminated by umbellate white flowers in June; and affords red berries, containing ripe seeds in a favourable autumn.

In fine seasons they will be found ripe in October: collect and preserve them as the former.

*Sowing Seeds.* February is the proper month for each species; when sow them in any common soft soil, covering them one inch deep. The young plants being hardy, will need no protection.

### ELDER TREE; *SAMBUCUS*.

*Description.* Grows from twelve to fifteen feet high, garnished with large winged leaves, and numerous small rotaceous white flowers, appearing in May, June, and July; chiefly in cymose umbels, towards the ends of the branches; producing large bunches of black and other coloured berries; ripening in all seasons.

1. COMMON BLACK-BERRIED.

BRITAIN.

2. WHITE-BERRIED.

\_\_\_\_\_

3. GREEN-BERRIED.

\_\_\_\_\_

4. LACINATED, OR PARSLEY-LEAVED.

\_\_\_\_\_

5. GOLD STRIPED-LEAVED.

\_\_\_\_\_

6. SILVER BLOTCHED-LEAVED.

\_\_\_\_\_

7. SILVER-DUSTED.

\_\_\_\_\_

All the above, are varieties of the common black-berried elder, freely producing numerous ripe seeds in September, except the last mentioned; which blossoms, and affords seeds very sparingly.

8. RACEMOSE, OR RED BERRIED—S. OF EUROPE.

*Description.* Grows with a tree-like stem, branching ten feet or more in height, having reddish-brown branches and buds; pinnated leaves of six or seven oval deeply-sawed lobes, and compound oval racemous clusters of whitish-green flowers in May; succeeded by oval clusters of red berries, always ripening in September.

9. CANADIAN SHRUBBY.

N. AMERICA.

*Description.* Having a more shrubby stem branching little more than eight feet high, with reddish shoots; bipinnate leaves, composed of various oval lobes; and towards the ends of the branches, cymose, quinque-partite umbels of flowers in June and July; producing blackish-red berries in October.

On the berries of the several varieties of *sambucus* becoming fully ripe, they will be subject to depredations from granivorous birds, which greedily eat them. On being gathered, it is most easy to obtain the seeds by first breaking the ripe berries with the hand, and afterward to express the liquid by any light pressure, as squeezing in a coarse cloth or strainer

between both hands, or otherwise, without injuring the seeds ; when on a fine day, lay them in the sun and air, stirring them until they are become sufficiently hard and dry, safely to be preserved in bags until the following spring for sowing.

*Sowing Seeds.* In February, sow the seeds in any soft cool soil, covering them not more than half an inch deep. The young plants being hardy and of free growth, will not require protection by shade.

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### EVERGREEN THORN; *MESPILUS-PYRACANTHA*.

#### S. OF EUROPE.

*Description.* Hath a shrubby spinous stem, producing abundant slender and flexile branches, armed with long and sharp spines ; spear-shaped oval leaves ; and the young shoots in general, terminated by clusters of whitish flowers in May ; which are succeeded by large bunches of bright scarlet berries, always ripening.

The seeds of this tree, are not generally ripe until November, when the berries will become soft ; and on being gathered, break them by rubbing between the hands ; steep the whole in water one night : and on the following day, when they will be sufficiently soaked, stir them well to

separate the whole parcel, and rub the unbroken berries more hard ; that on being fully bruised, the seeds will sink to the bottom of the water, and the refuse rise to the top. When cast away the refuse, pour off the water, spread the seeds thinly to dry, and mix them with soft and dry sand until the following spring, when they will require to be sown.

*Sowing Seeds.* Early in February these seeds will require to be sown, and in soil soft as that applied to seeds of Fir Trees at large ; sow them in the same manner, covering them a quarter of an inch deep, and afford them shade by the wattled hurdle.

Transplant them in September, March or April, in the manner directed for common Holly.

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## GELDER-ROSE; *VIBURNUM-OPULUS*.

### 1. FLAT-FLOWERED, OR MARSH-ELDER. *BRITAIN.*

*Description.* Rises near twenty feet in height, branching opposite, and having a whitish bark ; large lobated or lobed leaves, and large flat umbels of white flowers at the ends of the branches in May, freely producing red berries, which always ripen.

In October, these seeds will be found fully ripe in considerable quantities, on large flat bunches ; which may be suffered to remain on the trees until

they incline to fall; as they will be subject to no annoyance from birds, or other accident than falling off: which will not become general, before the heavy rains of November. On being gathered, preserve them in an equal quantity of sand or dry soil, until the second spring, when they will require to be sown.

## 2. COMMON GLOBULAR FLOWERED.

*Description.* Grows more than fifteen feet high, branching opposite, with large lobated or three lobed leaves, on glandular foot stalks, and large globular umbels of white flowers, at the ends of the branches in May and June; sparingly producing small branches thinly furnished with red berries always ripening.

In September or early in October, the berries will have become red, and the seeds will be sufficiently ripe to gather; when they will require to be collected and preserved in manner of the above.

*Sowing Seeds.* In February of the second spring, sow the seeds in any moist and cool situation, covering them not more than half an inch thick with soft soil; the plants being hardy and of free growth, will succeed with or without temporary shade.



**HONEY-SUCKLE, UPRIGHT; *LONICERA*  
*ERECTA*.**

**1. ALPINE RED-BERRIED.**

***AUSTRIA.***

*Description.* Hath a short, thick, upright stem, with erect branches, growing four feet high and upwards, and spear shaped leaves; producing from the sides of the branches, many red flowers in May; which are succeeded by red berries, always ripening.

**2. BLUE BERRIED.**

***SWITZERLAND.***

*Description.* Produces a more dwarf shrubby stem, branching moderately, little more than three feet high; having a purplish bark, oblong lanceolate leaves, and many white flowers in May; affording blue berries, ripening in all seasons.

**3. BLACK-BERRIED.**

***SWITZERLAND.***

*Description.* Rises with a shrubby upright stem, branching four feet high; with oblong entire leaves, and white flowers in May; succeeded by black berries, freely ripening.

All the varieties of Upright Honeysuckle, ripen their seeds in berries of various colours, freely, in August; when they may be readily obtained by hand,

slipping them from off the trees ; which they afford only in moderate quantities. From these berries ripening when the weather is commonly warm, they are liable to be devoured by birds. On being gathered, spread them in the sun a few days to dry, when intermix them with sand, or any light and soft soil, to be preserved until the following spring, when they will require to be sown early.

*Sowing Seeds.* These trees, being of forward growth, their seeds will require to be sown early as January, if the weather admits, in soft loamy earth. Cover them half an inch deep, and protect them from sun by the wattled hurdle. On being late sown, the plants will not rise the first spring. Being of early growth, transplant them in October.

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**HONEYSUCKLE, FLY ; *LONICERA*  
*XYLOSTEUM.***

***N. OF EUROPE.***

*Description.* Having a shrubby, strong, upright stem, branching eight feet high ; with a whitish bark, and oblong oval, downy leaves ; producing from the sides of the branches, white flowers in June ; which afford double red berries, ripening in all seasons.

These berries, which will not ripen sooner than

September or October, require to be collected, and preserved in the same manner as the three preceding varieties of Upright Honeysuckle.

*Sowing Seeds.* In the manner of Upright Honeysuckle, and transplant them in October.

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### HONEYSUCKLE, ITALIAN; *LON. CAPRIFOL.*

*Description.* Rises with shrubby declinated stalks, affording long, slender, trailing, twining, greenish branches; oval, close-sitting leaves, by pairs opposite; and all the branches terminated by whorled bunches of flowers of great fragrance, appearing in March, freely ripening their seeds in all seasons.

1. EARLY WHITE-FLOWERED ITALIAN. *ITALY.*
2. EARLY RED-FLOWERED. 

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In September the berries of these early flowering Honeysuckles will have become red, and the seeds fully ripe; when gather them, by cutting or pulling off the bunches. Preserve the seeds as the Upright species.

*Sowing Seeds.* As directed for Upright Honeysuckle, and transplant them in October.

## HONEYSUCKLE, DUTCH; *LON. GERMAN.*

*Description.* Rises with a shrubby declinated stalk, and strong-shooting, trailing, purplish branches; oblong oval, opposite leaves on short foot-stalks; and all the branches terminated by oval imbricated heads, affording large beautiful red flowers of fragrant odour; in June and July.

1. LONG-BLOWING RED GERMAN.

*GERMANY.*

2. COMMON RED DUTCH.

*HOLLAND.*

3. SCARLET-FLOWERED.

The seeds of these varieties will not be fully ripe until October, when the berries will become red; gather them in manner of the Italian, preserving the seeds in the same way.

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## IVY, COMMON; *HEDERA.*

*BRITAIN.*

*Description.* Hath flexible rooting stalks, garnished with large, lobated, or oval leaves; and clusters of greenish flowers at the extremities of the young shoots, succeeded by round clusters of black berries; ripening in the spring.

1. COMMON GREEN CLIMBING.
2. GOLD-BLOTCHED LEAVED.
3. SILVER-STRIPED LEAVED.

Even after a fine summer and autumn, the seeds will not be fully grown sooner than the early part of April; and on becoming ripe, will incline to fall from the trees, when they may be collected; and on being immediately sown, will grow the same spring. The variegated sorts will produce growing seeds, but in smaller quantities,

*Sowing Seeds.* In April, soon as they are collected, sow the berries entire, in soft and cool soil, covering them half an inch deep. From being necessarily late sown, they will require much shade. Transplant them in September or March.

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### JASMINE SHRUBBY YELLOW; *JASMINUM FRUTICANS*.

#### S. OF EUROPE.

*Description.* With shrubby firm stalks; and angular branches of low, but somewhat robust and bushy growth; broad trifoliate and pinnated leaves; having large yellow flowers in July, which are frequently succeeded by black berries, but not always ripening.

In October, they will have attained their full

growth; when collect and intermix them with light soil until the first spring.

*Sowing Seeds.* Sow them in February in any soft light earth, covering them one inch deep, protecting them from the sun.



## JUNIPER, COMMON; *JUNIPERUS*.

### BRITAIN.

*Description.* Rises ten to twelve feet in height, branching very closely from the bottom upwards, thickly furnished with narrow, awl-shaped, prickly leaves; producing small, yellowish flowers in May, succeeded by purplish berries, which do not ripen until the autumn of the following year; but are generally sufficiently matured to produce seedling plants. Late in September, or early in October, they will become black, when they are frequently destroyed by the Greenfinch and other birds: those growing on the same tree, seldom ripen wholly together. Where it can be conveniently practised, beating off the berries on cloths, is the best and cheapest mode of obtaining the seeds.

It will be easy to cleanse the berries from the refuse falling from the trees, by a proper sieve at the time of gathering; when they will require to be intermixed with sand, cinder-dust, &c. to be preserved in the earth as Holly Berries.

*Sowing Seeds.* February is the month in which to sow these seeds ; taking care that the berries are properly broken, and incorporated with the soil in which they have been buried, previous to sowing ; in which business, the soil, as is directed for seeds of fir trees, must be applied. In the same manner, cover in the seeds, little more than a quarter inch deep. The young plants being of small and unsubstantial growth the first season, will receive much benefit from the protection afforded by the wattled hurdle.

March is the fittest month in which to transplant them ; and being rather of shy growth on particular soils, it will be beneficial to protect them from the sun by the wattled hurdle as much as possible, until midsummer.

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## LABURNUM ; CYTISUS-LABURNUM.

### AUSTRIA.

*Description.* With a large, straight stem, branching into a wide-spreading head, thirty-feet high ; having smooth, greenish branches ; oblong, oval, entire leaves ; and long slender foot-stalks, sustaining long spikes of bright yellow flowers, which appear in May, hanging loosely downward ; commonly producing very numerous ripe seeds.

**1. LONG-SPIKED FLOWERED.****2. SHORT-SPIKED FLOWERED.**

These seeds ripen in October, commonly remaining on the trees uninjured till December, except in seasons of excessive wet; by which they will be shelled out. As the branches of this tree incline to upright growth, they will most easily be collected by ladders, or climbing into the trees; when, with the hand, slip back the flower-stalks, bearing the seeds, and they will come off in entire bunches.

It will be easy to obtain the seeds by thrashing the pods in a sack, or otherwise, on the weather becoming frosty or dry, at any time before the first spring; and the application of one common-sized sieve, sufficiently wide to let through the seeds and retain the refuse.

*Sowing Seeds.* From the extreme hardness of the young plants, these seeds may be sown early as possible in the spring, covering them not more than half an inch, with any common soil moderately soft, and unprotected from the sun.



## **LAUREL ; *PRUNUS-LAURO-CERASUS*.**

### **LEVANT.**

*Description.* Rises near twenty feet in height, branching very widely round, with large, oblong, shining, evergreen leaves ; having white flowers in May ; which are succeeded by large and oblong black berries, ripening in all seasons.

**1. BROAD-LEAVED CHERRY BAY.**

**2. NARROW-LEAVED COMMON LAUREL.**

**3. BLOTCHED-LEAVED CHERRY BAY.**

In fine seasons, these seeds will be fully ripe about the latter end of September, especially those growing in warm situations ; but those in shade will be later two or three weeks. On becoming black, they are oftentimes greedily devoured by thrushes and blackbirds, which will frequently destroy very considerable quantities in a short space of time ; that where large quantities are required, those of deep red complexion may be gathered, as they will ripen by being laid thinly on a dry floor. It will be most easy to collect them by stripping off the entire bunches with the hand, either by pulling down the boughs, or climbing into the trees. Seeds, of the last mentioned variety, will produce blotched-leaved plants.

On considerable quantities being collected, great care will be necessary that they do not remain in any sack or bag more than a few hours, to avoid being heated and spoiled ; and where it is practicable, it will be advantageous to sow them soon as they are gathered. When these berries are collected for sale, or designed to be preserved until spring before they are sown, it will be necessary to spread them immediately after gathering not more than an inch or two thick, on a dry floor, in an airy room, stirring them every day or two with a rake ; or from the great plenitude of moisture they contain, would speedily mould, and thereby become liable to rot.

*Sowing Seeds.* These berries require to be sown in situations defended from the severity of the winter, as such seedling plants will be found far more tender than full grown trees, and proportionably liable to injury from frost. The fittest time to sow them in quantities, is immediately after being gathered fully ripe, on a rich and soft soil not retaining the wet throughout the winter, which, on heavy and adhesive land, would prevent the young plants breaking through the surface ; and being thus timely sown, will rise early, and generally in the following spring : or where they are not sown until that season, January, or the early part of February, is the best time ; as, on being sown late as March, the kernels will have become shrivelled ; that very many will not rise, but decay in the

ground. In either case, cover them with earth two inches deep.

On the summer proving favourable, and the plants making good progress the first year, September, or early in October, on the autumn proving moist, will be found the most friendly season for transplanting, by bedding them out, as other seedlings, singly, two or three inches apart in the rows; as by remaining on the seed beds two years, many of the plants will become inconveniently large, and rise with unfavourable roots: where this can be effected on a north border, contiguous to a wall or other close fence, to preserve the young plants from the severity of winter, and the cold and harsh winds of the following spring, the advantage will be great; in which situations, on the soil being favourable, a far greater part will be found in excellent condition to transplant into nursery rows or quarters, early in the following autumn, where they will make root sufficient to establish themselves before the ensuing winter, and form excellent plants for final transplantation by the next autumn or spring.

## LAUREL, PORTUGAL; *LUSITANICA*.

### PORTUGAL.

*Description.* Grows twelve or fourteen feet high, with very full head; having oblong, oval, dark-green leaves, and loose bunches of small white flowers in June, succeeded by roundish middle-sized black berries, ripening almost every year.

In the first season, berries of the Portugal Laurel seldom fully ripened before the middle of October; and in shady situations, and backward seasons, will be proportionably later, in which they are oftentimes imperfectly matured. They are not to be considered fit to gather, until they are become black, when thrushes, &c. will greedily devour them. Like the berries of Common Laurel, they will be best sown soon as they are gathered, as they are very juicy; or will be best preserved by laying them thinly on a good floor in an airy situation; and immediately on being dry, intermix and bury them with sand until the following spring, when they will require to be early sown.

*Sowing Seeds.* The same method as is recommended for Common Laurel, will in all respects apply to the present, with this difference only, that the berries being of smaller size, will require to be covered about a quarter inch less deep. In both cases, great advantage will be found from

the application of the wattled hurdle, or other shade during the first summer.

Where opportunity offers, it will be very advantageous to sow the seeds of both Portugal and Common Laurel, on a due north border, admitting both the morning and evening sun, where the young plants can be protected throughout the winter by any close fence, as a wall or paling to prevent injury from severe frosts, of which they are in some measure susceptible in the seed beds.

In transplanting the Portugal, we recommend the same season and method of bedding out, as in the Common Laurel, from which similar advantages are to be enjoyed ; but as these are of less free growth, and the seedling plants may be considered somewhat more hardy, they will remain secure on the seed-beds two years ; on the wood being then more hard and substantial, may be bedded out three or four inches apart ; and on the following autumn or spring, safely transplanted into nursery rows. Where a close north border, as that contiguous to a wall or paling, cannot be enjoyed, bedding out the young plants in more exposed situations, may always be practised with considerable, though not equal success ; and is far preferable to spring planting, as by it the growth of the young plants will be much promoted.

## LAUREL, SPURGE; *DAPHNE-LAUREOLA*.

### BRITAIN.

*Description.* With greyish coloured stalks, rising nearly from the root, branching irregularly three feet high; ornamented with thick spear-shaped, smooth, ever-green leaves; producing from the upper parts of the branches, very many small greenish flowers, in clusters, in February; succeeded by oval-shaped black berries, freely ripening in all seasons.

These berries ripen early as the middle, or latter end of June; which, if not immediately gathered in their on their becoming black, will be liable to be devoured by birds, as the Greenfinch, &c. to preserve them from which, in order to their coming perfectly matured, cover these low growing shrubs with garden mats or netting; by which they may be preserved on the trees until they begin to fall to the ground. They may be readily gathered by pulling them from the trees in large bunches or clusters, in which they are produced. their berries, when ripe, abounding with moisture, require some attention to their preservation, or the kernels will become rotten; that it will be advantageous on their being gathered, to dry them, by spreading them thinly a few days in the sun, prior to mixing them with at least two-thirds of fine and

dry white sand or cinder dust, putting them into a large garden pot or box ; or burying them in the ground any dry situation.

*Sowing Seeds.* From the early propensity of these trees to vegetate, the berries will require to be sown in January, on a good soil ; thriving even in bog earth. Cover them one inch deep, affording the young plants all possible shade by the wattled hurdle, this tree being a native of woods, and other shady situations. Being of very forward growth, transplant them in shade early in September.

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**LAURUSTINUS, COMMON ; *VIBURNUM*  
*TINUS.***

***S. OF EUROPE.***

*Description.* Grows eight feet high, or more, branching abundantly from the bottom upwards, and of very bushy growth ; with oval, entire, evergreen leaves, and whitish and red flowers, produced in large clusters at the sides and ends of the branches, in January and the spring months ; sparingly furnished with small, bright, purple berries, which ripen sufficiently, only in our warmest seasons. On collecting the branches, pick off the berries, and mix them with sand or cinder dust. Preserve them in any pot or box of convenient

size until the first spring, when they may be sown.

*Sowing Seeds.* The seeds of this tree not always fully ripening; it will be most safe to sow them thickly in garden pots, covered half an inch deep with lightest soil, placed under hand-glasses. By this method new varieties are to be obtained: or on the seeds being fully ripe, they will rise in tolerable proportion, sowing them in the spring, as Laurel berries, covering them more lightly with soil. On the plants being two years old, transplant them in beds on a close north border, as Common and Portugal Laurel, not more than two inches apart; in which situation they will afford good plants in two years.

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## LILAC TREE, COMMON; *SYRINGA*.

### N. BRITAIN.

*Description.* Rises with an upright shrubby stem, dividing near the bottom into many branches, growing near twenty feet high; producing heart-shaped leaves, and large, erect, conical bunches of purple flowers in May, at the ends of the young shoots; and ripe seeds in warm seasons.

The Scotch, or Common Purple-flowered, is the only Lilac commonly producing ripe seeds in Eng-



land ; which, in fine and dry seasons, ripen freely. Seedling plants, of this description, may be frequently found growing from out of decayed walls contiguous to old seed-bearing-trees.

Early or late in October, according to the season, they may be gathered in large bunches ; and on the weather becoming frosty, the seeds will be easily thrashed and cleansed. In cold and wet autumns, they ripen less freely, when the best seeds will be found growing in warm situations and sunny exposures.

*Sowing Seeds.* February is a proper time, covering them not more than half an inch deep with light soil : the young plants being hardy, will not need protection.

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## MAPLE-TREE; *ACER*.

### 1. SCARLET-FLOWERING.

*N. AMERICA.*

*Description.* With leaves divided into five slightly indented lobes, white on the under side ; with aggregate flowers in April or May : ripening in our warmest seasons.

**2. MR. CHARLES WAGER'S FLOWERING. N. AMERICA.**

*Description.* With the largest aggregate of flowers, appearing in May; ripening its seeds only when seasons are warm and favourable.

**3. SUGAR, OR SACCHARINE. N. AMERICA.**

*Description.* Having five-parted palmated leaves, the edges being sharply indented, flowering in May; affording ripe seeds in warm and favourable seasons.

**4. PLANE-LEAVED NORWAY. EUROPE.**

*Description.* With smooth and very large shining leaves, divided into five sharp-pointed, and acutely indented lobes; producing its flowers in a Corymbus in June. From blooming late, its seeds are not always perfected.

**5. VIRGINIAN ASH-LEAVED. N. AMERICA.**

*Description.* Having leaves composed of several distinct lobes, with flowers produced in a racemus in April; freely ripening its seeds in common seasons.

**6. MONTPELIER, OR FRENCH. S. OF FRANCE.**

*Description.* With shining leaves, having three lobes, with entire edges; flowering in May; but its seeds do not ripen here, when summers are moist and cold.

**7. CRETAN, OR LEVANT.**

**LEVANT.**

*Description.* Having leaves divided into three lobes, with the under side a little downy; blossoms in May and June: but in moist and cold seasons, is not free to ripen in this kingdom.

**8. TARTARIAN HEART-SHAPED-LEAVED. TARTARY.**

*Description.* With oblong, heart-shaped, slight-lobated, and unequally serrated leaves; flowering in May and June; only ripening in our warmest seasons.

All the Maples ripen their seeds not until the autumn; and generally in proportion to their time of flowering, or the countries of which they are natives, being more or less warm. Each variety produces its seeds in manner of the Sycamore and Common Maple, which may be collected either by pulling down the branches of those of lower growth with proper hooks; and climbing into, or placing ladders against those of tallest growth.

The seeds being generally soft, it is necessary that they be gathered and preserved as dry as possible, until the following spring, when they will require to be sown.

*Sowing Seeds.* Early in January, or February, as the season will admit, is the fittest time to sow the seeds of all Maples, before they become over dry; that if they remain unsown until March, it will be doubtful the young plant rising at all. Cover them not more than two inches deep: from their general hardiness and free growth, protection by shade will be unnecessary.

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### MEDLAR; *MESPILUS*.

1. SHRUBBY MÈDLAR, OR AMALANCHIER. GERMANY.

*Description.* Grows with many shrubby, slender, hairy stems, branching little more than three feet high, with purplish branches; oval-serrated leaves, and small white flowers, produced in May and June, in clusters at the extreme parts of the branches; succeeded by small black fruit, ripening in common seasons.

## 2. ARBUTUS LEAVED.

VIRGINIA.

*Description.* Hath a shrubby stem, growing five feet high, and spear-shaped leaves; producing clusters of small white flowers in May, at the sides and ends of the branches; succeeded by small, purple, roundish, hawlike fruit, ripening freely in all seasons.

## 3. DWARF, OR BASTARD QUINCE.

AUSTRIA.

*Description.* With a a shrubby smooth stem, and slender branches, growing five feet high; and oval serrated leaves; producing from the axillas, purple flowers in May and June, succeeded by small red fruit, commonly ripening.

## 4. SNOWY CANADIAN.

N. AMERICA.

*Description.* Hath a shrubby smooth stem, branching four to five feet high, with smooth, purple branches; oval, oblong, serrated leaves; and all the branches terminated by clusters of snowy white flowers, appearing in April and May; succeeded by small purplish, haw-like fruit; always ripening when the autumn proves warm and dry.

**5. COTONEASTER, CALLED, DWARF QUINCE. EUROPE.**

*Description.* Rises with a shrubby smooth stem, branching five feet high; with slender, reddish-branches; oval entire leaves; and from the axillas, small, close sitting purple flowers in May and June; producing small roundish bright-red fruit, uniformly ripening;

November is the common month in which the several varieties of *Mespilus* ripen their seeds; and may be considered most fit to gather, when first they incline to fall from the trees. These seeds will be best preserved by spreading the fruit thinly on a dry floor in an airy room, that they become in some measure dry; when bury each sort distinctly in the ground, intermixed with at least an equal quantity of sand, or light and dry soil until the second spring; when they will require to be sown.

*Sowing Seeds.* Like most other stone-fruited seeds, these will require to be sown early as possible in the spring; covering them one to two inches deep, in proportion to their size.

The young plants being hardy, will require no protection from shade.

## MEZEREON, *DAPHNE-MEZEREUM*.

### BRITAIN.

*Description.* Grows with a strong, woody stem; branching from nearly the bottom into many erect branches, affording a regular handsome bushy head, five to six feet high, garnished with small spear-shaped leaves; producing on the upper parts of the branches and young shoots, numerous flowers, appearing in January and February, before the leaves; which are succeeded by roundish berries, of different colours in the varieties, ripening in all seasons,

1. WHITE-FLOWERED YELLOW-BERRIED.
2. PURPLE-FLOWERED RED-BERRIED.
3. PALE-RED FLOWERED.
4. DEEP-CRIMSON FLOWERED.

In June, these berries will commonly become ripe, especially in warm situations; but in later seasons and in Northern exposures, may not be fully matured until July. The only accident to which they are exposed, is from granivorous birds, as the Greenfinch. &c. which will greedily devour them in most situations; but it will be easy to preserve them by covering the trees with matts, or netting, soon as they begin to change colour. They will be easily obtained from the trees by running the small branches containing the berries between the

thumb and fingers of either hand; which when gathered, will require to be preserved until the second spring in the manner directed for the berries of Spurge Laurel.

*Sowing Seeds.* The same method and season which has been directed for Spurge Laurel, will prove directly applicable to the several varieties of Mezereon, it being of the same tribe, and indigenous to shady situations.

From its early growth, requires to be transplanted in September or early in October, on the ground being properly moist.

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## PHILLYREA, MOCK-PRIVET; *PHILLYREA*.

### S. OF EUROPE.

*Description.* The several varieties rise from ten to twelve feet in height, branching numerously into wide spreading bushy heads; closely garnished with oval, moderate sized leaves, growing opposite in pairs; and clusters of small monopetalous, funnel-shaped, greenish-white flowers, appearing in April; each variety producing many small, round, black berries, with ripe seeds in common seasons.

1. NARROW ROSEMARY-LEAVED.
2. LAVENDER-LEAVED.
3. PRIVET-LEAVED.



## 4. OLIVE-LEAVED.

## 5. BROAD-LEAVED.

## 6. PRICKLY ILEX-LEAVED.

The several varieties of *Phillyrea*, commonly produce growing seeds in considerable quantities in November, which fully ripen in favourable seasons; but will be most freely produced on warm and rich soils.

In all situations, they will be best matured by remaining on the trees throughout the winter, gathering them in the spring, by stripping them from the branches with the hand; as it would be injurious to beat the trees. These berries being obtained in February or March, require to be immediately intermixed with sand or dry soil, as *Holly Berries*, to be preserved until the second spring for sowing; but where they are intended to remain on the trees until the spring, in situations where birds abound, and especially in severe winters; it will be necessary to cover the tree with netting or other convenient article for their security. On being thus fully ripe in the spring, they will readily shake off the trees, or may be collected by hand, stripping them off the branches.

*Sowing Seeds.* February is the most favourable month for sowing these seeds, requiring a soft dry and rich soil; the method recommended for *Holly Berries*, will prove friendly to each variety. On the berries being timely sown in pots of light and soft soil, covered half an inch deep, placing them

under hand glasses, the young plants will frequently rise the first spring.

All the varieties being hardy, transplant them either in September or March, in the manner of common Holly.

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## POPLAR TREE; *POPULUS*.

### 1. TACAMAHACCA.

*VIRGINIANA.*

*Description.* Of moderate growth, branching out into a full regular head; having middle-sized leaves, oval, heart and spear-shaped, whitish underneath, and of very balsamic odoriferous scent.

Blossoms sparingly in April, producing large catkins, which always afford tolerable quantities of sound seeds, ripening in May.

### 2. ATHENIAN.

*GREECE.*

*Description.* Of erect, but moderate growth, the branches expanding from the bottom of the tree upwards; having large pale-green heart-shaped leaves, and very long catkins, affording flowers in March and April, which produce a good supply of ripe seeds early in the summer.

About the middle of May, and soon after the leaves of this tree appear, the seed pods suspended on long catkins, will become of a pale yellow

complexion; which on inclining to open, the Down will appear, when the seeds may be considered ripe and are to be collected as has been directed for other poplar, which are considered forest trees: and whose seeds are to be obtained in manner of black poplar. This method will be found equally applicable to each species and variety; and by this easy mode of propagation, new ornamental varieties may be obtained.

*Sowing Seeds.* See described under the article Black Poplar, and also the proper method of transplanting.

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## PRIVET; *LIGUSTRUM*.

### BRITAIN.

*Description.* With a shrubby stem, branching from twelve to fourteen feet high, and upwards; having numerous slender, pliable branches to the bottom, with narrow, spear-shaped, oval leaves, and white foetid flowers, commonly appearing in May, in thick erect spikes at the ends of the branches; succeeded by clusters of black berries; the several varieties ripening their seeds in common seasons.

1. COMMON DECIDUOUS.
2. GOLD-BLOTCHED-LEAVED.

## 3. SILVER-STRIPED-LEAVED.

## 4. EVERGREEN.

In November, the seeds of each variety will be fully ripe to gather, when they may be most easily collected by stripping the bunches by the hand off the trees, and putting the berries into baskets or bags ; by which considerable quantities may be speedily obtained. The berries will remain long on the trees, as no birds will annoy them ; but on becoming fully ripe, are liable to be beat off by heavy rains. All the varieties will equally succeed by seeds, which will rise the first spring either on being kept dry, or preserved from mould and heat, in sand or light soil ; but require to be early sown.

*Sowing Seeds.* February or early in March, will prove favourable to sowing, this tree being of somewhat late growth ; each berry containing more than one kernel, it will be necessary to divide the seeds carefully as possible, by rubbing, in order to their being regularly sown. They will succeed in any tolerably light soil, covered half an inch deep ; and the plants being hardy, will require no protection by shade on being timely sown.

## ROCK ROSE ; *CISTUS*.

### 1. LAUREL-LEAVED.

SPAIN.

*Description.* Having a shrubby strong stem, branching erectly into a head five feet in height ; with oblong, oval, petiolated leaves, smooth and green above ; producing large white flowers at the sides and ends of the branches, in June and July ; and seeds in moderate proportion in common seasons.

### 2. POPLAR-LEAVED.

PORTUGAL.

*Description.* With a shrubby stem, branching five or six feet in each direction ; garnished with large heart-shaped, pointed, smooth leaves, having numerous large white flowers at the sides and ends of the branches, appearing in May and June ; freely producing seeds.

### 2. COMMON GUM-BEARING. SPAIN AND PORTUGAL.

*Description.* Having a strong shrubby stem, branching from the bottom upwards, forming a bushy head, five to six feet high ; ornamented with spear-shaped leaves, green on the upper side and white below ; and numerous large white flowers, purple spots at the base of each petal at the sides and ends of the branches in June and July ; affording but partial crops of seeds, and only in warmest seasons.

## 4. MONTPELIER, LARGE.

S. OF EUROPE.

*Description.* With a shrubby stem, branching laterally from the bottom upwards, three to four feet; having spear-shaped, hairy, close-sitting, dark-green leaves; and from the ends of the branches, long, naked footstalks, with many large white flowers in July; producing a partial supply of seeds.

## 5. HAIRY-LEAVED.

S. OF EUROPE.

*Description.* Cistus with a shrubby strong rough stem, forming a large bushy head of moderate height; garnished with oval, roundish, hairy leaves, growing opposite; and many large purple flowers from the sides, and ends of the branches in June and July; which affords seed very freely.

## 6. LARGE-LEAVED.

S. OF EUROPE.

*Description.* Having a shrubby slender smooth stem, about three feet high; branching horizontally, and wide spreading; ornamented with small, oval, hairy-leaves; and from their axillas, purple flowers on naked footstalks, appearing in June and July; affording an ample supply of seeds.

7. CRETAN, PURPLE-FLOWERED. *LEVANT.*

*Description.* Cistus with a shrubby stem, of dwarf growth, branching laterally, not more than three to four feet high; having oval, spatulated, enervous roughish leaves; and deep purple flowers on footstalks, only at the ends of the branches, produced in June and July; but affords seeds somewhat sparingly.

8. SEA-PURSLANE-LEAVED. *PORTUGAL.*

*Description.* Having a stem somewhat shrubby, but branching erectly from the very bottom; forming a slender bushy head, four feet high, and upwards; adorned with very small, oblong, oval, white hairy leaves, by pairs opposite; and all the sides and ends of the branches, very long naked footstalks, supporting bright yellow flowers in June and July; which affords seeds very abundantly.

9. BEAUTIFUL. *PORTUGAL.*

*Description.* A variety of the last mentioned; having dark coloured spots at the base of each petal, flowering in June and July; producing ripe seeds very freely.

The seeds of all the varieties of Rock Rose, growing in open exposures, seldom ripen sooner than September or October, except in situations pecu-

liarily sunny and warm. The greater part of which require to be gathered soon as they are ripe, to avoid shedding ; but in some instances they will remain on the trees until November.

Those first blooming, may be expected to produce their seeds somewhat earlier than those flowering late in the same situation ; and their being sufficiently ripe to gather, may always be known by the pods containing these seeds becoming brown and hard, which will be best obtained by selecting those of each sort from the tree or shrub, as they ripen ; and it will commonly be found that the disposition of the several varieties of these plants ; to produce seeds, will be in proportion as the situation in which they grow, is sunny and warm. On the pods being dry, it will be easy to obtain their numerous small seeds by breaking them singly with the finger and thumb ; when they will readily fall to pieces by rubbing them between the hands ; which may be practised any time before the following spring : or the seeds may be preserved in the pods until that season, when they will require to be sown.

*Sowing Seeds.* The young plants of all the varieties of *Cistus*, being somewhat tender when young, and, from the minuteness of the seeds, it is necessary to sow them in pots of softest rich soil, nearly on the surface, placing them under sound hand glasses in a South aspect in the month of March ; frequently supplying them with soft water, which must always be applied by light sprinklings, or



there will be danger of the seeds being disturbed. Seedling plants of all the varieties being of free growth, will require to be transplanted early in the first summer

Soon as the young plants incline to advance, it will be necessary to tilt the glasses on each side by slate or small thin stones, in order to admit air to strengthen them; or they will soon become weak. On being two or three inches high, they will require to be transplanted, by placing the largest of the young plants round the rims of pots of any convenient size furnished with similar soil to that in which they have been sown, evenly within two inches of the top, setting the plants somewhat aslope against the sides, an inch apart; which being done, fill the pot to the rim, making even the surface; taking care to perform the above within doors or in shade, to prevent the roots becoming dried by the sun or air. On being planted, water them copiously by sprinkling, as in sowing; and on the leaves of the plants becoming dry, replace the pots under hand glasses on surface of the ground on a North border, or on the North side a wattled hurdle, without covering the glasses; when on an evening remove them to an East aspect; first watering them as before, and plunging the pots to their rims in the ground, closely stopping the glasses at the bottom in each situation. Should the first or second day prove hot, shade them by a mat, or pease haulm lightly spread over the glasses from eleven until near two o'clock, when remove

the covering; and in about a week, young shoots will form at the tops of the plants, which, on becoming about an inch in height, the glasses will require to be tilted five or six days, to admit air by degrees, when they may be taken away.

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## ROSE TREE; *ROSA*.

### 1. ALPINE, MOUNTAIN.

SWITZERLAND.

*Description.* Grows five to six feet in height, having smooth, or unarmed, reddish branches; pinnated, seven-lobed, smooth leaves; somewhat hispid pedunculi; oval germina, and deep red single flowers, appearing in May; affording ripe seeds in favourable seasons.

### 2. AMERICAN PALE-RED.

N. AMERICA.

*Description.* Rises full five feet high, with smooth reddish branches thinly aculeated; pinnated, lobed, smooth leaves, having prickly footstalks; somewhat hispid, pedunculi; globose, hispid, germen, and single red flowers, which appear in July and August; succeeded by berry-like heps in the autumn, ripening their seeds only in warm and dry seasons.

## 3. APPLE-BEARING.

BRITAIN.

*Description.* Growing about seven feet in height, having strong, erect, brownish, smooth branches; with aculeated, sparsedly-pinnated, seven-lobed, leaves downy beneath, and prickly footstalks; hispid, peduncles; globular prickly germen; and large single red flowers in June and July; succeeded by very large round prickly heps, which produce sound seeds almost every year.

## 4. BELGIC.

EUROPE.

*Description.* Grows three to four feet high, having greenish branches, furnished with prickles; and numerous double red flowers in June, with short petals; which are succeeded by heps, producing ripe seeds, when the autumn proves fine and dry.

## 5. BURNET-LEAVED.

3. OF EUROPE.

*Description.* Grows about one yard high; with aculeated, sparsedly-small, neatly pinnated, seven-lobed leaves, having obtuse, folioles, and rough petioles; smooth peduncles, globular, smooth germen; and small single flowers in June and July, in two varieties, the red and white; commonly succeeded by heps, ripening in all seasons.

## 6. CINNAMON, SINGLE.

S. OF EUROPE.

*Description.* Rises to the height of five or six feet, with purplish branches; thinly-aculeated, pinnated, five or seven-lobed leaves; having nearly inermous petioles; smooth pedunculi, and smooth globular germina, and small, purplish-red, cinnamon-scented flowers, early in May; producing ripe seeds early in common seasons.

## 7. DAMASK.

EUROPE.

*Description.* Rising eight to ten feet high, with greenish branches armed with short, aculea; and moderately double, fine, soft-red, very fragrant flowers in June; succeeded by heps; affording ripe seeds in favourable autumns.

## 8. EGLANTINE, OR SWEET-BRIAR. BRITAIN.

*Description.* Grows five or six feet high, having green branches, armed with strong spines; sparsedly-pinnated, seven-lobed, odoriferous leaves with acute folioles, and rough footstalks; smooth pedunculi, globular, smooth, germina, and small, pale-red flowers in May and June; uniformly producing very numerous heps; amply furnished with sound growing seeds in all seasons.

## 9. SEMI-DOUBLE.

BRITAIN.

*Description.* Of more strong and luxuriant growth than the former, rising eight to ten, producing very many semi-double, pale-red flowers in June; succeeded by numerous longer and larger heps; abounding with sound seeds alway ripening.

## 10. FRANKFORE.

EUROPE.

*Description.* Of large growth, rising eight to ten feet in height; being a vigorous shooter, with brownish branches thinly armed with strong prickles; producing somewhat large, double, purplish-red, flowers in June; blowing irregularly, and with but little fragrance; which afford heps containing ripe seeds, on the autumn proving warm and fine.

## 11. SPANISH.

SPAIN.

*Description.* With leaves hairy on both sides, and the small leaves of the empalement, sharply sawed; producing reddish flowers in June; and smooth fruit; affording ripe seeds in a fine autumn.

**12. HUNDRED-LEAVED DUTCH, HOLLAND.**

*Description.* Grows three to four feet high, with erect greenish branches, moderately armed with prickles; and large, remarkably double red flowers in June and July; with short regularly arranged petals; requiring a dry autumn to perfect their seeds.

**13. MUNDI, OR ROSE OF THE WORLD. S. OF EUROPE.**

*Description.* A variety of the Common Red Rose; having large spreading semi-double red flowers, agreeably striped with white and deep-red, appearing in June; which are succeeded by hips, commonly affording ripe seeds in all seasons.

**14. OFFICINAL, RED-FLOWERED. S. OF EUROPE.**

*Description.* Of erect growth, three or four feet high, having small branches with few prickles; and large semi-double deep red flowers, in June and July; freely ripening its seeds annually.

**15. PROVENCE. ITALY AND SPAIN.**

*Description.* Grows five or six feet high, with greenish brown prickly branches; and very large double globular red flowers, with large petals fold-

ing one over another, more or less in the varieties, appearing in June and July ; frequently succeeded by heps, affording ripe seeds in fine seasons.

**16. SCOTCH, DWARF.**

**BRITAIN.**

*Description.* Of not more than two to three feet high in growth, very closely armed with spines ; small, neatly pinnated seven-lobed leaves, with prickly foot-stalks ; prickly pedunculi ; oval, smooth germen ; and numerous small, single flowers in June and July ; succeeded by round dark-purple heps, commonly producing ripe seeds.

**17. VIRGIN, OR THORNLESS. N. OF EUROPE.**

*Description.* Grows five to six feet high, having greenish branches almost without spines ; and with large, double, pale-red fragrant flowers in June ; which are commonly succeeded by long heps, containing sound seeds.

**18. YORK AND LANCASTER.**

**EUROPE.**

*Description.* Grows six to seven feet high, producing variegated flowers, consisting of a mixture of red and white, frequently in beautiful stripes ; sometimes in half of the flower, and sometimes in some of the petals, appearing in June and July ;

and succeeded in the autumn by heps, producing ripe seeds in common seasons.

The above are the principal varieties of hardy Roses we know, bearing seeds ; which produce them in tolerable quantities, on being planted in warm exposures and in favourable seasons ; and it will generally be found, those are most productive of sound seeds, growing in sunny situations.

October is the earliest month in which any of the sorts can be expected to afford ripe seeds ; but as there can be no danger of their shedding, or being destroyed by any common accident from remaining longer on the trees, such will be best matured by remaining on them until November, when each variety will have attained their growth. In which month collect them, to preserve in sand, cinder dust, or common light soil ; burying them in the earth until the second spring, when they will early require to be sown.

The best method of collecting them, is by pulling off the seed pods, or roundish husks containing the seeds, when they have become dry and hard ; but such ought never to be gathered in the least green ; as the seeds in that case must be immature.

The propagation of Rose Trees by seeds, is to be considered the only means we have to obtain new varieties, and which deserves to be practised ; as in warm seasons, their seeds ripening freely, considerable numbers of seedlings, commonly va-



rying from the parent plant, may be thus obtained in one year.

*Sowing Seeds.* January, or early in February, is the fittest season for this business. Previous to sowing, carefully break the heps, to separate the seeds singly, when sow them in soft and cool ground covering them about half an inch deep, and in proportion to the sorts, and different sizes of the seeds. Apply the wattled hurdle to protect from the sun.

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## SCORPION SENA; *CORONILLA-EMERUS*.

### GERMANY.

*Description.* With a shrubby stem, plentifully branching about seven feet high; closely ornamented with winged leaves, of three pair of lobes, terminated by an odd one; and at the sides of the branches, very many long flower-stalks; each supporting two or three large, yellow, butterfly-shaped flowers, in May and June; which are succeeded by longish pods, producing ripe seeds in common seasons.

October is the common month in which these seeds become ripe; which may be known by the bladder-like pods becoming brown and dry; when they may be slipped from off the trees, and the

seeds picked out by breaking the pods: they will require to be sown early in the following spring.

*Sowing Seeds.* This tree being hardy, and of liberal growth, its seeds may be sown early in February; covering them not more than half an inch with soil, and without temporary shade.

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## SPINDLE TREE; *EUONYMUS*.

### 1. EUROPEAN SPINDLE TREE.

*BRITAIN.*

*Description.* With an upright stem, dividing into many branches, growing ten to twelve feet in height; furnished with oblong, opposite leaves; with small branches of greenish flowers, at the sides of the branches; which are succeeded by pentagonous capsules, expanding to dislose their seeds, which always ripen in the several varieties.

In November, all the varieties of common *Euonymus* will afford ripe seeds; which may be readily known, by the capsules opening; when they may be easily stripped by the hand from off the branches in considerable quantities, and intermixed with an equal proportion of any common light and dry earth; burying them in the ground until the second spring, when they will require to be sown.

## 2. BROAD-LEAVED.

## HUNGARY.

*Description.* Hath a strong stem, dividing into many branches; grows ten to twelve feet high, with broad, oblong, sharp-pointed leaves, and small bunches of greenish flowers in May or June; succeeded by orange-coloured seeds, enclosed in deep red, pendent capsules, ripening in all seasons.

Late in August, or early in September, the capsules containing the seeds will incline to expand; when they will require to be gathered, or they will fall to the ground: Preserve these berry-like seeds in sand, or other light article, as directed for Mezereon and Spurge Laurel-Berries, until the following spring, when they will require to be early sown.

*Sowing Seeds.* Early in February each will require to be sown, covering them about an inch deep. Protection by the wattled hurdle will be unnecessary, the plants being of free growth.

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 SYRINGA; PHILADELPHUS.

## S. OF EUROPE.

*Description.* Rises with many shrubby, slender, brittle stems, branching five to six feet high; hav-

ing large, oval, spear-shaped, rough leaves ; and many large loose bunches of white fragrant flowers, appearing in May ; ripening its seeds only in the hottest seasons.

Only in our warmest summers will this tree produce growing seeds ; which in favourable seasons and sunny exposures, are then produced in tolerable quantities in October ; when they may be gathered, by breaking off the small branches on which they are contained ; and thrashing the pods when the weather is frosty or dry, to obtain the seeds.

*Sowing Seeds.* Early in February, sow them thickly, covering the seeds not more than a quarter inch deep with soft and fine soil ; or they will not be able to break through the surface of the bed. No screen is necessary.

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## THORN; *CRATÆGUS*.

### 1. SCARLET-FLOWERED.

*BRITAIN.*

*Description.* Grows fourteen to fifteen feet high, branching from the bottom upwards, armed with spines about the size of the Common Thorn ; having obtuse, nearly-trifid, sawed leaves, somewhat glaucous ; and numerous clusters, or bunches of palish-red, and somewhat deeper than flesh-co-

loured flowers, appearing in May; producing small red haws, commonly containing ripe seeds.

**2. YELLOW-BERRIED VIRGINIA. N. AMERICA.**

*Description.* Growing more than twelve or thirteen feet high, having its buds, and the extremities of the young shoots, of yellowish complexion; with the fruit of a golden yellow colour; ripening in all seasons.

**3. STRONG-THORNED AZAROLE. N. AMERICA.**

*Description.* With an upright stem, branching more than twelve feet high, furnished with large strong thorns, having broad, obtusely-serrated leaves; and large white flowers in clusters, appearing in May; succeeded by large, red, acid berries, ripening freely in warm seasons.

**4. THORNLESS AZAROLE. N. AMERICA.**

*Description.* Growing like the former, but without thorns; flowers in May, and produces ripe seeds in favourable seasons.

**5. VIRGINIAN COCKSPUR.****N. AMERICA.**

*Description.* Having an upright trunk, divided upwards into a large branchy head, rising near twenty-feet high; with large, oval, smooth, serrated leaves; and very large clusters of flowers, appearing in May; which are succeeded by spear-shaped, scarlet fruit.

**6. SCARLET-FRUITED COCKSPUR. N. AMERICA.**

*Description.* Of large and strong growth like the former; having many strong recurbed thorns like a cock's spur; flowering in May and June; and the seeds freely ripen in common season.

**7. PEAR-LEAVED VIRGINIAN AZAROLE. N. AMERICA.**

*Description.* With an upright robust trunk, branching fourteen feet high, armed with long cock-spur-like, sharp thorns; having oval, spear-shaped, sawed, smooth leaves; and large bunches of flowers appearing in May and June; producing large, red berries, with seeds, commonly ripening.

8. PLUMB-LEAVED AZAROLE. *N. AMERICA.*

*Description.* Growing like the former, with plumb-tree leaves, having strong spines, flowering in May and June; affording large red fruit, always ripening in favourable seasons.

9. GOOSEBERRY-LEAVED AZAROLE. *N. AMERICA.*

*Description.* Hath a shrub-like stem, branching six feet high, closely armed with thorns; oval, wedge-shaped, angular, sawed-leaves, woolly underneath; producing small white flowers in May and June; succeeded by yellow fruit, ripening only in favourable seasons.

In the several varieties of the cultivated thorn, November will prove the common season of their fruit being matured; and it will invariably hold good to gather them not until after the fall of the leaf, or before the berries incline to fall from the trees; when they may be considered fully ripe and readily be stripped off by the hand, from trees of moderate size. As they require to be buried in soil until the second spring, on being gathered, intermix them with an equal quantity of dry sand or soft soil; burying the sorts in the earth separately or together, as may appear eligible.

*Sowing Seeds.* In January, or early in Fe-

bruary, sow them in the season and manner which have been directed for *Roses*; but the application of the wattled hurdle will be unnecessary in *Thorns*.

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### TREFOIL, TREE OR SHRUBBY; *CYTISUS*.

#### 1. COMMON SESSIL-LEAVED.

ITALY.

*Description.* Having a low shrubby stem, branching into numerous erect brownish branches, forming a bushy head five or six feet in height; ornamented with small, oval leaves, growing by threes; and bright, yellow flowers, in short erect spikes, at the ends of the branches appearing in June. Its seeds always ripen, and commonly early in September.

#### 2. BLACK-ROOTED.

ITALY.

*Description.* With short, shrubby stem, branching very low, forming a bushy head four feet high; oblong, oval, dark-green, trifoliate leaves; and yellow flowers at the ends of the branches appearing in July; affording ripe seeds in all seasons, towards the latter end of October.



### 3. NEAPOLITAN HAIRY, EVERGREEN. *S. OF EUROPE.*

*Description.* Having an upright shrubby grey stem ; producing many erect greenish hairy branches, composing a large head full six feet high ; closely furnished with small oval folioles by threes ; on short foot-stalks, producing yellow flowers in June, pendent on spikes, having trifid hairy cups ; freely ripening its seeds in favourable seasons, early as September ; but in cold and wet autumns, not until October.

### 4. AUSTRIAN EVERGREEN.

*AUSTRIA.*

*Description.* Grows with a shrubby stem, dividing near the ground into many greenish branches, forming a bushy head three or four feet high ; closely garnished with oblong, oval, smooth, whitish-green leaves, and bright yellow flowers, growing in close umbellate heads, at the ends of the branches ; appearing in May ; which afford ripe seeds in common seasons, either in September or October.

The above varieties of *Cytisus*, producing their seeds in short flattish pods, can only be obtained by pulling or stripping them from off the trees by hands in the months of September and October :

The seeds will be most easily obtained by thrashing or beating the pods in bags of convenient size, and may readily be cleansed by proper sieves.

*Sowing Seeds.* Some of these plants being rather tender when young, the latter end of February or beginning of March, will be found a friendly season for this business ; those which are evergreen, requiring a soil peculiarly soft. Cover the seeds of each, about half an inch deep, and apply the wattled hurdle to protect the young plants from the heat of violent sun.

Those which are evergreen, may be transplanted either in September, March or April, preferring a close North Border where it can be obtained, the plants being somewhat tender when young : but the deciduous, may be bedded out in any of the winter months.

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#### WAYFARING - TREE; *VIBURNUM - LANTANA.*

*Description.* Grows with a woody stem fourteen feet high ; with flexible shoots and light brown bark ; large, heart-shaped, whitish-green, serrated leaves ; with large umbels of white flowers in June, growing at the extremities of the branches ; succeeded by bunches of flattish, red berries, ripening in all seasons.

## 1. COMMON WAYFARING-TREE.

BRITAIN.

## 2. BLOTCHED-LEAVED.

## 3. ROUND-LEAVED.

All the varieties of this tree perfect their seeds in September: the berries on becoming a deep red color are considered ripe; when the large flat bunches growing at the ends of the branches, may be cut or pulled off. In many situations, they are destroyed by birds, especially near to woods or large plantations; where they abound. On being collected, mix them with sand or any light dry soil, in equal quantity as the seeds of Spindle Tree; and bury them in the earth to preserve them until the second spring, when they will require to be sown.

*Sowing Seeds.* February is the best month; sow them on any soil which is tolerably soft; covering the seeds not more than half an inch deep. The plants being hardy, will require no protection by shade.

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WILLOW; *SALIX*.

## 1. BAY-LEAVED, SWEET-SCENTED.

BRITAIN.

*Description.* Of somewhat considerable stature, having brownish-green branches; oblong, broad, serrated, smooth, sweet-scented; shining leaves; and pentandrous flowers on catkins in May; ripen-

ing its seeds in August, but sparingly in common seasons.

**2. VARIEGATED-LEAVED SALLOW.      BRITAIN.**

*Description.* Of but moderate height, having smooth, dark-green, brittle branches; and oval, waved, roughish, blotched leaves; flowers in May, sparingly ripening seeds early in June.

**3. WEEPING-WILLOW.      LEVANT.**

*Description.* Of somewhat large growth, having numerous long, slender, pendulous branches, hanging loosely around the tree; and long, narrow, spear-shaped, serrated, smooth leaves; flowering in May, sparingly producing ripe seeds in June.

It will easily be known when the seeds of each sort are ripe, by the complexion of the Catkins becoming yellowish; when they will require to be gathered and cleansed as Poplar seeds.

*Sowing Seeds.* Sow them and transplant the young plants as Black Poplar.

**NURSERY INSTRUCTIONS**  
**FOR**  
**PROPAGATING SEEDLING PLANTS,**  
**OF**  
**HARDY TREES AND SHRUBS,**  
**EXOTIC AND INDIGENOUS,**  
*By Seeds of British Growth.*

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IN the formation of a SEEDLING NURSERY, the most important objects of attention are *Situation, Exposure, and Soils*; and as the leading design of this production is to promote an easy, cheap, and abundant supply of young plants, by sowing their seeds of **BRITISH PRODUCTION**, we shall distinctly notice them in as concise, but perspicuous a manner as possible, in order to their being more clearly understood.

**SITUATION.**

Requires to be somewhat low, where the land is not in the least liable to inundation, or excess of moisture, than which nothing can be more pernicious to the most hardy Seedling Plants; where it will be more warm, and secure from cold, harsh, cutting, and boisterous winds. than if elevated, especially in the spring, when the young plants first appear; and, if possible, where there is, or can be formed, a pond, pool, or dyke, of permanent soft water, throughout the summer, to afford occasional waterings, as the spring and early part of the summer season may require; or where such cannot be obtained, pump water exposed to the air in a tub, trough, or cistern, to become soft, may be beneficially applied; but that which is hard is unfavourable.

A fence of close paling, is on many accounts preferable, espe-

cially, as such will not in the least harbour or protect vermin, as rats, mice, snails, &c. which are common annoyances, both to tree seeds and young seedling plants; frequently proving injurious, and oftentimes destructive to entire crops, where the fences are formed of hedges or old walls: but where suitable wood cannot conveniently be obtained, green hedges, formed with a single row of white thorn quick, or any other plant of free and erect growth, will be found the most cheap and durable; great care, however, must be taken to destroy these vermin, and a strict guard kept against their ravages in all situations: whereas a double fence, or that formed by two rows of plants, would afford a greater asylum to these obnoxious animals and reptiles. A further argument in favour of a close empalement is, that it will more effectually exclude the cold and harsh winds of spring, which many seedlings by reason of their tender age, are unable to endure.

### EXPOSURE.

As temporary shade will be found of the most importance in a **SEEDLING NURSERY**, especially to young plants of small, unsubstantial, or slow growth; it is eligible that the form of the nursery be either of a regular or long square, lying fully open to the south; in which aspect, if the beds are marked out in direct lines pointing duly east and west, the requisite shade must be obtained in any proportion or degree by placing on the south side of each bed, designed to be shaded or screened from the violence of the sun, the **WATTLED HURDLE**; which will afford protection from its scorching rays at mid-day, throughout the spring and until midsummer; when most young plants will be able to endure its greatest heat. Without this precaution, should a warm and sunny spring succeed, (except on extremely soft and cool soils, the generality of such plants, and especially those produced from the smallest seeds, and others requiring to be late sown, will be in the extremest danger of being scorched or burned up: but as the early morning and late evening sun, from their peculiar softness, are to be considered of the utmost importance to the vegetation and growth of these young and tender plants; it is highly necessary, that not the least ob-

struction by lofty spreading trees or buildings, be suffered to intervene; as without such advantage, they will be subject to starve in common seasons, and more particularly in such as are moist and cool, solely from the want of the genial warmth and friendly influence of such mild and soft sun.

### *To form the Wattled Hurdle.*

Provide a sufficient number of light wooded hurdles, five to six feet in length and about three feet deep from the upper to the lower rail; when, with smooth branchy boughs of willow or other light, straight and pliable wood, six feet or more long, wattle each hurdle closely to the bottom, by fixing these boughs uniformly between the three rails of which the hurdle is composed; spreading the small branches in such manner and proportion as nearly to exclude the mid-day sun, throughout the bed. Contiguous to the embankment, and on the south side of the bed, place these hurdles, in a direct line, pointing duly East to West, first making holes in the earth with an iron bar to receive their pointed stakes; and with a mallet and beetle, drive them into the ground, until the lower rail becomes even with the surface of the earth. To prevent their being blown down, secure them by affixing other stakes on the South side, to keep the hurdles erect throughout the summer.

By duly administering water to the more tender young seedlings thus protected, to keep the ground only moist, in warm and dry seasons, ample crops will invariably prove the result.

Branches of willow well furnished with long pliable side shoots, on account of their smoothness and lightness, and being attainable in most situations, are to be preferred to every other. About mid-summer they may generally be removed.

### SOIL FOR SEED BEDS.

Notwithstanding nature requires various and widely different soils, in the culture and perfecting the growth of different trees, shrubs and plants; experience has fully proved that in their infantile or seedling state, no other than such as are fine, light, soft and inadhesive; either of sandy, loamy, or boggy texture, agreeable to

their several natures, and constitutions, can be found suitable; such being soft and loose, on the seeds germinating, the plants can freely vegetate both by root and branch, and the most delicately fine and tender fibres, will be able readily to make way into such earth without obstruction, striking sufficiently deep to establish themselves; which in very many instances could not be the case, were more close, binding and adhesive soils applied; and with this further advantage, that such light earths being porous and open, all heavy and repeated downfalls of wet, speedily making their way through them, will be found to retain only a degree of moisture-sufficiently favourable to vegetation, without starving the young plants: whereas a close soil, inclining to stiffness, would in many instances become too confined and heavy from copious rains, either to admit the young plants breaking through the surface, or form their roots downwards; in which case, they must inevitably rot and die within the ground.

Horticultural writers, of eminence, have invariably recommended rich and strong soils for nursery grounds in general, and which we admit to be favourable to the growth of very many hardy trees, shrubs and plants, after their removal from the seed beds; but at the early age of one and two years old, when the young roots of seedling plants are commonly fine or tender, a softer soil is to be considered indispensibly necessary to their growth, which will always be in proportion to the progress of the perpendicular roots downwards in the earth.

In seeds of trees and shrubs, not sown until the second spring after gathering, and generally such as are stoned; it commonly happens that some proportion of young plants will not rise until the year after sowing: which further proves the necessity of light and soft soils.

## REMARKS ON SOILS.

In order to explain the natures and properties of the requisite soils, and the peculiar uses to which they may be most advantageously applied in the business OF A SEEDLING NURSERY, they are here described by classes 1, 2, and 3.



## CLASS I.

Soil chiefly consisting of the finest and softest sand, of darker or lighter complexion, will prove peculiarly favourable to the growth of all young seedling hardy evergreen trees and shrubs, being natives of rocky, mountainous, heathy, and other barren soils and situations; as Cedar, Fir, Pine, Juniper, &c. but that, which is coarse and harsh, must be carefully avoided. And where such soil as we recommend, naturally inclines to be rich and good, it is also eligible for all hardy deciduous trees, producing light, or small and minute seeds, as Birch, Mountain Ash, &c. which will less readily make their way through strong soils; and in default of which, prepare the following compost, the materials for which may be readily obtained in most situations:—Take of the finest sand which can possibly be procured, and of black rotten tree-soil, or earth, from either Ash, Oak, Willow, Elm, Apple or Pear-trees, each finely sifted when dry, to take out the coarser parts; when mix well together an equal quantity of each, by frequent turnings over until the whole become thoroughly incorporated; or, in default of such tree soil, the finest bog earth, intending that which is most soft, and abounding with silvery grit, may be applied; which being procured dry in the autumn season, before meadows and other situations affording it become inundated and wet, may be properly intermixed in considerable quantities, and exposed to the rains and frosts of a whole winter season; taking care to turn over the same with a broad spade or shovel, not less than once a week when the weather will permit, until the season of sowing.

Young and tender plants, which are the produce of small seeds, requiring to be sown on soil of this description, cannot be expected to rise strong; and being necessarily very thinly covered with light and open earth, will be liable to great injury from the scorching rays of the sun at mid-day on remaining undefended; to guard against which most effectually, after the seeds are sown and covered in, they will require to be screened, as recommended under the article Exposure, in order to the young plants receiving temporary shade in the warmest spring months, and early part of the summer.

## CLASS II.

A light loamy earth, inclining to sand, but somewhat heavier than the former, will prove fully suitable for the propagation of trees and shrubs, producing more large and substantial seeds; as Acorns, Ash Keys, Beech Mast, Haws, Chesnuts, Black-thorn, &c. and on which the young plants will be found to grow more freely and strong than on lighter soils. In default of which, and where the natural earth is the reverse, prepare the following compost, which may be cheaply provided in almost every situation:—Procure either of white or drift sand, black and rotten earth from any decayed trees, moderately sifted, and soft unbinding loamy soil from a rich pasture ground, inclining to sand; or where this soil cannot be obtained, bog-earth of the description recommended may be applied, of each an equal third part or quantity; preferring the autumn season as in preparing other composts, in order to their becoming well incorporated before the spring, by turning over the whole heap or parcel once a week, on the weather being favourable during the winter; or, at least, provide them within a month or two before they are required for sowing; in which case turn them over two or three times a week.

All young seedling plants, admitting to be sown more deeply, and in such heavier, or stronger soil, rising very stoutly, will require no protection from the sun, on being sown as directed under each respective article.

## CLASS III.

Bog-earth, usually of black or dark complexion, partaking more or less of shining white grit of silvery appearance, and easy to be obtained from the extremities of bogs and morasses, is peculiarly favourable to the propagation of seedling trees and shrubs, usually denominated Aquatic, and others thriving in cool and moist situations; as the Alder, Poplar, Willow, Lime-tree, &c. always preferring that which is most soft and fine, and having the greatest proportion of bright silvery sand or grit; remarking, however,

that the common light black soil of the fens, not unfrequently called bog-earth, but not partaking of transparent silvery grit, will be found favourable to the growth of but few tree seeds; not excepting even these usually denominated bog-soil plants.

We recommend the following as the most cheap, easy, and effectual method of obtaining the most favorable bog-earth. Early in the autumn, and before the meadows, or other moist grounds wherein proper bogs are usually found, become wet from inundation or heavy rains, dig the upper soil deep as it may be found corresponding with the above description, together with the turf, carefully rejecting all such as is heavy, or inclining to be hard, which must be carted or wheeled away together, and in some convenient place laid to rot, exposed to all weathers, turning it over once or twice every week in the course of the winter, as the weather may admit; attentively breaking all lumps with the spade or shovel. Early in the spring, on a dry day, immediately before the earth is required to sow the seeds, it must be entirely sifted over; by which, to take out all mulch, roots, &c., when it will be fit for use.

## PREPARING GROUND.

Having made choice of the most favourable spot of land, as nearly as possible correspondent with the particulars of soil, situation, and exposure, as have been pointed out, proceed to dig or trench the ground one foot, or foot and half deep, as the natural quality may admit; taking care that the surface, when dug, be good and favourable as possible, carefully guarding against throwing up inferior soil, and attentively clearing the ground of all roots of perennial weeds, as Twitch, or Couch-grass, Dandelion, Bindweed, or Bearbind, and others of permanent growth of whatever description; not excepting the smallest, which are perennial in root, as Chickweed, and all others, the local productions of various counties and situations: which would otherwise prove extremely troublesome during the summer season, and injurious to the young plants; at the same time rejecting all large stones and

other rubbish which might afterwards appear on the surface of the beds, and prevent the young plants appearing. Where fresh or sward land can be obtained, it ought to be preferred for almost every purpose in Nursery gardening; and as such being dug early, or during the winter, or a month or two before it is required for use, it will prove specially favourable for a Seedling Nursery from its natural tendency to become soft and light, to admit the free growth of the perpendicular, or what are commonly denominated Tap Roots of the young plants; that where such is intended to be applied, it may very advantageously be dug even in the wettest part of winter, and sometimes when no other ground is properly accessible to the spade: And such land being dug early in the autumn for immediate use, will prove equally favourable to planting at that season, as it will rot and become mellowed during the winter; and being always more light than such as has been long under cultivation, will most freely discharge the usually heavy and falling wet of autumn and winter, to the more effectual security and preservation of all plants averse to extreme moisture; and the sward or turf being buried at the bottom, will serve to admit more readily the downward progress of these roots; but where no other land than that which has been long under the spade, can be applied, it requires to be dug a shorter time previous to being sowed, to avoid becoming wet and retaining undue moisture; which will tend to retard the business, by rendering the work of sowing troublesome and dilatory.

## FORMING THE SEED BEDS.

Being competently provided with well preserved seeds, agreeable to the foregoing directions, in their proper seasons proceed to the business of sowing, by setting out and forming the beds in manner following:—

The ground intended to be sown, having been properly dug at at least one full spade deep, and clean as possible, throughout the piece; on each side set down a line whereby to mark out the ends of the beds by chopping out a mark with a light and clean spade, close to such line from one end of the ground to the other;

which being done, observing that the length of the ground on each side be equal, with a five feet and half staff evenly indented by marks across twelve inches distant, proceed to set out the beds and pathways as follows:—

Begin at either end to mark out a straight, one foot and half wide pathway; after which, measure off by the staff laying it on the ground, one four-feet bed, making proper marks with the finger, or any implement or utensil at hand, on the line first chopped out with the spade; in which manner continue to mark the beds and alleys throughout; and when the first side is thus finished, set out the opposite one in the same manner, observing to begin at the same end of the piece as on the former side; by which the beds and pathways will fall regular: this being completed, on a dry day set out the beds by two lines placed across the piece; when two persons, with light and clean spades, must remove, or take out the entire surface of the bed, thus marked out, about three inches deep, leaving one-half such soil in each pathway, and close or contiguous to the side of the bed from whence it is taken, leaving the middle of the pathway as open as possible; that in raking and sowing the beds, the persons employed do trample only in the alleys; and in this manner continue to prepare the beds throughout for the reception of the seeds, which being done, and the earth suitably dry, with a fine iron rake, make regularly even the surface of the beds, drawing off all stones, &c. when the seeds are to be sown and covered, as hereafter directed under the head. Sowing Seed Beds.

## SOWING SEED BEDS.

The manner and proportion of sowing tree-seeds, in point of quantity, will be found to vary, and that according to their different size and substance, as well as the progress of the young plants on the seed beds; but in common, we recommend that they be sown over rather than under thick, especially on observing the least defect in the seeds, or after an unfavourable season.

Of the lightest and smallest seeded, and those latest sown, as Birch, Poplar, Willow, and Alder, also Firs and Elms in general,

it will be necessary to sow them thick in the extreme; and in covering the seeds of such, prefer sifting lightly over them soil of each description recommended, that the young plants may more readily break through the surface. Others, as Laburnum, Acacia, Bird Cherry, &c. producing more substantial seeds and plants of free growth, will be best spread upon ground about a quarter inch apart; whilst the stronger seeded, as Common Ash, Sycamore, Beech Mast, Common Laurel, Portugal Laurel, &c. require to be sown about half an inch distant; and those of largest size and foliage, as Chesnuts, Walnuts, Acorns, &c. ought to be sown or planted an inch asunder: in general covering them with the lightest of the soil laying in the path-way, and previously taken out of the beds, laying the same regularly over the seeds in small but equal quantities with a clean spade, covering them the proper depth or thickness generally pointed out in the articles under the denomination of Forest Trees; afterwards evenly spreading the same with a fine rake.

*Remarks on FORMING SEED BEDS, SOWING and  
COVERING IN SEEDS, and their after  
TREATMENT.*

In taking out the soil, to prepare the beds for the reception of the seeds, we do not intend that it be shovelled out; by which, the earth at the bottoms of the beds would become stiff, close, or irregular; and consequently in an unfit state to rake previous to the seeds being sown; but removed regularly by the point or edge of the spade: by which the soil, on being properly dry, will be found in a most favourable condition, that it may be smoothly and evenly raked with the utmost readiness and ease.

The advantages of thus forming the seed beds, with a complete embankment throughout, and only in a small degree higher than the surface of the beds, by laying the earth contiguous thereto, without treading on the ground intended to be sown, will evidently appear; as they must retain all falling rains, and waterings

applied, to the great nourishment and benefit of the young plants; in which state they will enjoy very superior advantages over those sown on beds raised above the surface, a practice which deserves to be universally deprecated, although generally resorted to by the less enlightened horticulturist; in which last mentioned situation, the young plants can be supposed to receive at most but trivial benefit from the most genial and timely showers or waterings, inevitably running off the beds.

In the business of covering in Tree Seeds, it requires to be recollected, that where they are timely sown, more young plants are lost and destroyed from their seeds being covered in too deep, than almost any other circumstance, especially in those of inferior size; as the depth or thickness of the soil laid over them, however favourable in its nature, being too great, it will be next to impossible that they break through the surface; and this will always require to be performed in exact proportion to the bulk, size, and strength of the various seeds, which in general we have minutely attended to. If it be stated, that they require sufficient covering to protect them from the greatest heat of the sun in our warmest seasons, it will invariably be found, that on being timely sown, the directions afforded will uniformly prove sufficient.

It will be peculiarly beneficial to the crops of Seedling Plants in general, that the natural soil on the surface of all newly sown beds remain unraked some days; and especially where it inclines to be less soft, or may in the least degree have become heavy and adhesive, which will render it more easy for the young plants to break through.

It ought never to be forgotten, that where we have pointed out the danger of young seedling plants being destroyed by birds on their first appearance, they require the minutest attention for some days; the trouble and expence of which will at most be trivial, as the danger will soon be past: and where covering the beds by boughs has been applied, soon as the young plants are wholly up and established, clear away all refuse from off the surface of the beds, as decayed leaves, broken and small branches, to admit all possible air to strengthen the young plants.

In the formation of the Wattled Hurdle, specially designed for the protection of Firs, Pines, Poplars, Willows and other latest sown tree seeds, requiring closer shade than most others to defend them from the sun; it will be advantageous to apply the slender and pliable boughs of Norway Spruce or Silver Fir, Yew or Ivy; which will afford a more cool and refreshing shade in warmest weather and sunny seasons, than the branches of willow generally recommended, or of any other deciduous tree not having leaves; and particularly for young plants of small and less free growth, making but little progress the first summer. Such will also prove specially favourable to seedling aquatic trees, and others requiring more cool and shady situations,

Pathways or alleys between the beds, one foot and a half wide, will be found of very sufficient width to receive the wattled hurdle, requiring to be placed close to the edge of each bed, to afford all possible shade to the young plants; and also to admit of weeding when necessary, by removing the hurdles. Watering may generally be performed from the opposite side, or after weeding when the hurdles are taken up.

#### NOTABLE REMARKS ON

### WATERING SEEDLING FIRS AND PINES;

#### *Applicable to various other Trees, Shrubs and Plants.*

The Seeds of all Firs and Pines, being necessarily sown late in the spring, the more sufficiently to avoid injury from frosts; frequently require watering on the weather becoming warm and dry, even after the young plants have risen; but in much less proportion from the friendly shade and protection afforded by the wattled hurdle: without which, they would be in great danger of being scorched or burned up by mid-day sun, on the weather inclining to be warm. In dry and hot weather, as sometimes happens in May, and frequently towards midsummer, whilst the plants



are young and tender, occasional waterings will be necessary, especially to late sown seeds, which are to be considered peculiarly liable to injury from drought, and especially where they are exposed to sun; which must invariably be performed where it can be practised early in the morning as day break, and at the advanced season of Midsummer early as two o'clock, as on being then watered, there can be no danger of the young plants being drawn in by worms, a most destructive reptile to many seedling plants where evening watering is practised, which tends to attract them in warm weather; and being thus early applied before sun rise, no danger can proceed from the hottest sun in the course of the day on which the watering is practised; and from the beds being earthed on the sides, ample waterings lightly administered may be very successfully applied, as necessity may require; but such watering must always be administered according to the nature and constitution of the different plants, as they are more or less hardy: as for instance, Baum o'Gilead, Silver and American Spruce Firs, and Weymouth Pines, being natives of climates where the summers are more warm, must be supplied moderately, or they will be chilled and starved by over watering when thus young, even in the hottest seasons; which will evidently appear by the rusty complexion of their grassy leaves: but not so with the more hardy, as Scotch, Larch, Norway Spruce, Fir, &c. which are natives of colder countries.

## NURSERY TRANSPLANTING

May be performed two different ways, but neither of which ought to be attempted before the ground has been previously dug perfectly clean; discarding all stones and other rubbish, and carefully picking out the entire roots of all permanent and durable perennial weeds.

All seedling plants of hardy trees and shrubs, as they arrive at the age of one or two years, will require to be transplanted from the seed beds, either into nursery beds or rows, according to their progress; the most easy, expeditious, and effectual methods of performing which have been accurately described.

### *Bedding Seedling Plants.*

Bedding out seedling plants, is the process commonly first to be practised: this will be found far superior to every method of transplanting by dibbing, which in many instances leaves the natural soil, unclosed or too light about the roots, thereby admitting harsh and drying winds, to the no small injury of the young plants; with the further disadvantage of treading on the newly dug ground; rendering this a tedious and dilatory business on the weather proving wet: both which may be totally avoided by bedding them out, by which process the young plants will always be planted in fresh dug earth, closely and lightly settling to their roots; and this may be practised at an infinitely less expence and trouble, as well as with great saving in point of time; that in late seasons, and especially when large quantities are required to be got out in a short space of time in the spring, many thousand plants with a few hands may be planted in one day; and in advanced seasons, when the weather frequently proves unfavourably dry, they may be most effectually secured from excessive drought and hottest sun, by the protection afforded from the wattled hurdle, with the further advantage of ample waterings, if necessary, to keep the soil cool and moist; thus, with little trouble or expence, sufficient shade and moisture will be afforded, to preserve many thousand plants in the driest season, but which cannot be practised by any other method. And as great benefit is frequently to be found from occasional watering in the summer, especially in such as are late planted, it may be most easily, and advantageously applied by this method, which cannot be effected without the greatest difficulty, where the young plants have been singly dibbed out.

The greatest advantages will be derived from bedding the generality of young seedling trees and shrubs at one or two years old, when of convenient size, that is from four to six inches in height; by which immense quantities may be put out in a small space of time; which on being timely planted, will afford admirable young plants, furnished with excellent roots, for further transplanting at the end of one or two years into nursery rows; and in some cases,

at the end of two years for final transplantation, where large trees are not required, especially by selecting the strongest plants.

In some instances, Seedling Trees of most free and liberal growth, as the several varieties of Elm, Alder, and others with more widely spreading branches, as Larch, Spreading Cypress, Stone and Wild Pine, on the season and soil proving very favourable, will admit of being transplanted after being bedded out only one year; which, however, must always rest with the option and pleasure of the planter; but where the soil is not perfectly genial, this cannot be expected.

In bedding out all seedlings, it will be necessary that the young plants be as much as possible of one even size, in order to avoid those of largest growth, overpowering such as are small; by which, the bedded crop would rise irregular, and the progress of the lesser plants be much retarded.

In all cases of bedding plants, where it is practicable, apply soil as similar as possible to the seed beds in which they have been raised; and as in some situations it may be difficult to form the beds in which they are intended to be planted, of such earth; where the quantity of young plants designed to be put out is not very considerable, it may be easy to improve the ground by the application of more light and soft soils.

Beds four feet wide will be easily cleared of growing weeds in the summer, by hoes of common length; and the pathways between being one foot and half wide, will afford sufficient room for cleansing and watering the plants when necessary; and also to place the Wattled Hurdle, in cases where it may be required; which, in either work, may be taken away and reapplied at pleasure.

Where the business of bedding out the young plants is recommended to be practised in the autumn, let it be timely performed; as in such cases, if it be deferred until the spring, and that season proves dry, and the ground becomes harsh, some plants must be expected to die, and the growth of others will be retarded; but in cases where the spring is recommended as the most favourable season, as chiefly in those which are evergreen, it may be generally understood that the autumn is improper; the tender roots of such

young plants being subject to decay from the heavy and soaking wets frequently permanent in the autumn and winter seasons, especially in soils retaining moisture.

Notwithstanding the spring is generally to be considered the most favourable season to bedding trees and shrubs which are evergreen; of the fir tribe, the Baum o'Gilead and Norway Spruce on being timely planted out in a moist autumn, and especially in situations where they can conveniently be furnished with occasional waterings, will be found to emit fresh roots before winter, and thereby securely establish themselves against the drought of the following spring and summer: but these are the only instances of firs which are evergreen, which can be adduced. We have also various instances of hardy evergreen ornamental trees and shrubs which best succeed by autumn planting, from their forming roots before the winter, on the autumn proving moist and favourable; as Common and Portugal Laurel, Common Lauristinus, Upright and Spreading Cypress; to each of which, the most favourable season for planting is accurately pointed out; and those which are more tender, may be easily preserved from the hardest frosts, by being planted in defended situations, or by covering in the severest winters. In short, the season and method we direct for bedding out the Baum o'Gilead, and Norway Spruce Fir, will equally apply to most evergreens which are to be denominated hardy; but in all cases of bedding seedling plants, whether one or two years old, such as are more than six or eight inches high, will be found of inconvenient size thus to plant.

In the business of weeding and cleaning the beds planted, an infinity of time, labour, and expence, will be saved; as by standing in the alley or pathway on each side, the ground between the rows of young plants may be made perfectly clean with a six inch wide hoe, pulling out by hand all such weeds as may escape the hoe, without trampling on the beds. This work, on being timely performed before the weeds have advanced in height, may be effected throughout the summer almost without trouble or expence.

### *Transplanting in Nursery Rows.*

The ground intended to be thus planted being duly prepared, it will be easy to mark out the rows across the piece oppositely, a foot or foot and half distant, or as occasion may require, chopping out the lines with a clean spade, in manner directed for setting out and preparing Seed Beds; performing this business both by dibber and spade.

### *Transplanting by the Dibber.*

As this mode of planting will be most easily and best effected in dry and mild weather, it will much facilitate the work, if an active boy or girl with a basket or apron go immediately before each planter to lay down the plants singly by the line in their proper places, in which case it will be found that one man, who is an experienced planter, will plant nearly as fast as the boy or girl may drop them, on having a proper sharp-pointed dibber; but great care must be taken effectually to close the earth to their roots. By this method, such as are from six to eight inches high, and upward, will be found of inconvenient size thus to plant; that to such it will be necessary to apply the spade in the manner generally directed for transplanting those which have been bedded out.

### *Transplanting by the Spade.*

By this process, the earth will settle more closely to their roots on being timely planted. And where late planting is practised, as on the spring being advanced, and the surface of the ground not wet, the earth may be lightly trampled, and more closely to the roots by the person holding the trees; under which circumstances, planting by the spade, deserves to be preferred, as the the most safe and effectual method. But in all cases, where it is practised, it is neccessary to avoid performing such work when the earth is wet, which may be best guarded against by planting immediately on the ground being dug.

### *SOWING SEEDS of ORNAMENTAL TREES and SHRUBS, in POTS, uncovered by HAND GLASSES.*

An east aspect will be found the most favourable in which to place the pots: Cedar, Cypress, and others hardy evergreen trees thus sown, from the extreme lightness, openness, and dryness of the soil, not retaining moisture, will require frequent copious waterings by light sprinkling: and in warm and hot sunny weather, almost daily; invariably performing this in an evening, and with soft water where it is practicable. The surest way of judging when water is necessary, will be from the surface of the soil in the pots first becoming dry.

*SOWING SEEDS of ORNAMENTAL TREES and  
SHRUBS, in POTS, placed under HAND-GLASSES.*

On sowing seeds in pots by the above method, frequent waterings will be necessary in so warm a situation ; the pots not being plunged, and exposed to the full sun of mid-day. This will be found the most certain method of all others to make the young plants rise without artificial heat, and especially on the glasses being closely stopped with common earth throughout at the bottom. On the plants being fully up, remove such soil to admit the smallest proportion of air ; and on the young plants being advanced about an inch in height, tilt or raise the glasses on each side by broken slates or thin stones about an inch thick, to admit air to strengthen the young plants ; and in about a week or ten days, the glasses may be taken entirely away, and the pots removed to a less sunny situation in an east exposure.

In watering seeds or young plants thus placed under Hand-Glasses, it requires to be recollected that no other than soft water ought to be applied ; the young plants, although naturally hardy, being rendered extremely delicate by so close and warm a situation. Fresh pump water, then most cold, would literally chill and starve the seedling plants. In this situation, always perform the business by light sprinklings, to soak the soil, preferring the evening, that the water penetrate through the entire body of earth contained in the pots, before the rising of the sun. In this situation, whilst the plants are young, and on the soil in the pots being kept moderately moist, no other shade will be requisite than in the middle of the hottest days ; when it may be beneficial to spread any light covering over the glasses not more than an hour or two ; and in cases where the pots are plunged in common earth to their rims, no shade whatever can be necessary, and

less water will be required. Both methods will prove equally favourable, that it will be right to adopt that which is most convenient; but seedling plants which are most tender and delicate, will generally best succeed by pots standing on the surface.

### *Transplanting in Pots,*

Is a business which may be generally practised with considerable advantage and success, in such plants as are more scarce and valuable, and others shy of growth; it being commonly performed in the spring season, when the young plants are about to emit fresh roots: that by first placing the pots in a situation where they are but little exposed to the sun, and introducing them progressively thereto; on being planted in favourable soils and furnished with sufficient watering to keep the earth regularly moist, they will generally succeed.

The advantage of placing the young plants round the pots contiguous to their rims, also the method of earthing their roots must appear; as by being thus planted, much room will be afforded for the expansion of the fibres towards the centre; and in which situation, they will avoid being crowded by the growth of the branches, far more effectually than if planted entirely over the surface of the pot, although planted thickly within the exterior, from the free admission of air; and thereby avoid excess of moisture by watering, from the soil being lightly applied to the plants placed in a situation peculiarly favourable to discharge the most copious supply; with the further advantage of their growth being abundantly promoted by the warmth and natural tendency of the burnt clay of which the pot is formed, to prevent moisture or damp to decay the roots; on being placed against which, it will be next to impossible that the roots of plants receive injury by wet or drought, on the soil being kept moderately moist.



In some peculiar cases, where Hand Glasses are directed to be applied, and more especially in transplanting those of most free growth in the summer season, the more speedily to promote rooting; on the plants having formed fresh roots, which may always be known by the growth or advance of the young plants, on discovering that they have made fresh shoots one to two inches in length, it is necessary to tilt the glasses on each side, to admit the air by degrees to strengthen them; or would soon become weak and languid, and insufficient to afford proper trees or plants.



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TREATISE  
ON THE  
IMPROVED CULTURE  
OF THE  
**Strawberry, Raspberry,**  
AND  
**Gooseberry;**

Designed to prove the present common Mode of Cultivation erroneous, and the Cause of Miscarriage in Crops of Fruit; also to introduce a cheap and rational Method of cultivating the Varieties of each Genus, by which ample Crops of superior Fruit may be uniformly obtained in all Seasons, and preserved beyond the usual Time of Maturity.

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BY THOMAS HAYNES,

*Of Oundle, Northamptonshire;*

Author of

AN IMPROVED SYSTEM OF NURSERY GARDENING; ALSO INTERESTING DISCOVERIES IN THE PROPAGATION OF ALL FRUIT-TREES, SHRUBS, AND PLANTS, BY CUTTINGS, WITHOUT ARTIFICIAL HEAT, &c.

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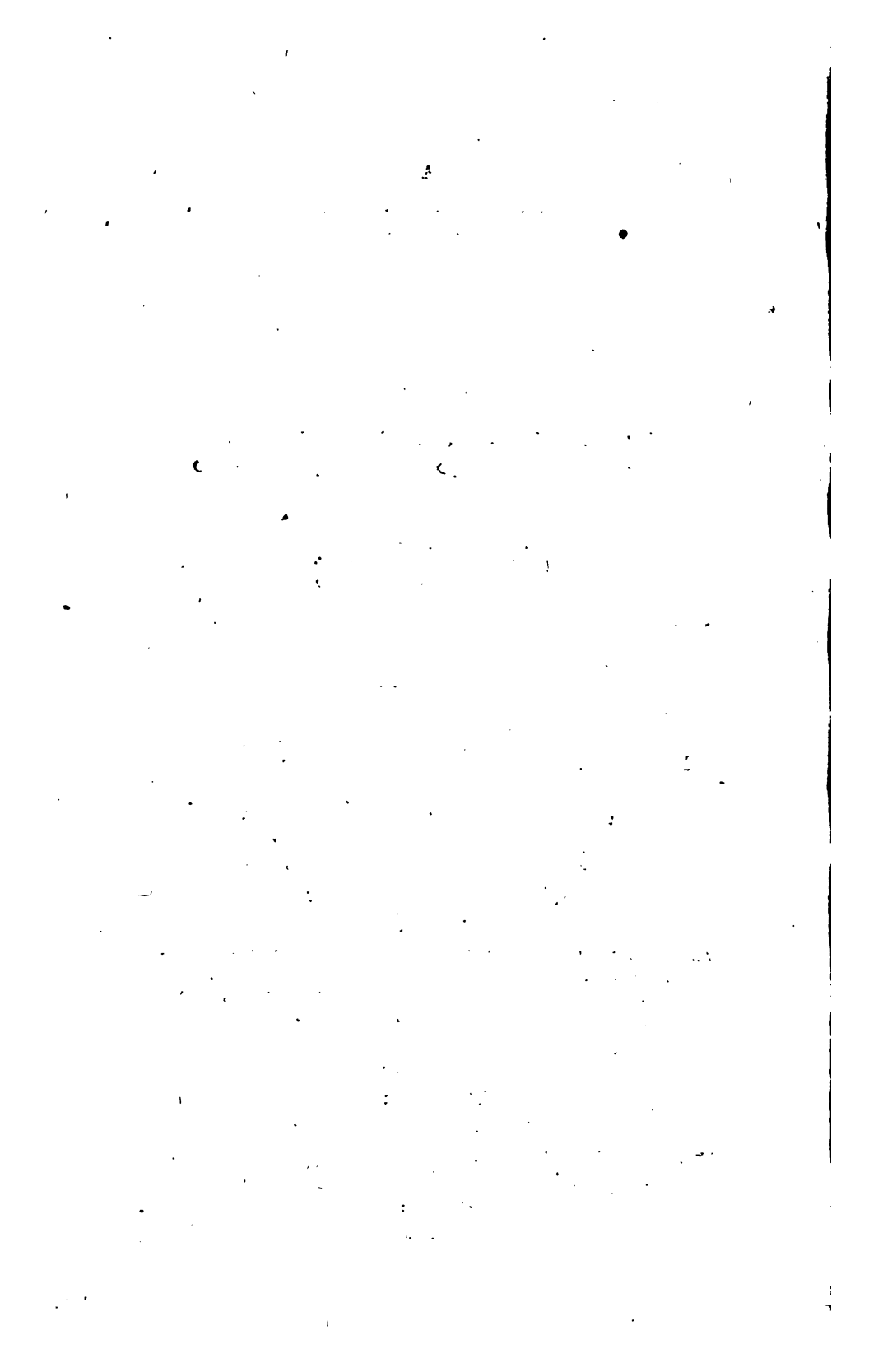
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1812.



## PREFACE.

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THESE Instructions for the Improved Culture of the STRAWBERRY, RASPBERRY, and GOOSEBERRY, in which the natures and constitutions of these Plants are accurately considered ; designed for the use and benefit of Families, the amusement of the Amateur, Connoisseur, and other private persons wishing to excel in the size and flavour of these fruits ; are most respectfully submitted to their candour, and the notice of the scientific Horticulturist, in full confidence that where a due regard is

paid to the directions offered, their attention will uniformly be rewarded with ample crops of superior fruit.

# TREATISE ON FRUITS.

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## THE STRAWBERRY.

THE leading design is to prove, that the STRAWBERRY is to be considered *a plant of shade*, naturally, or *a native* of moist and shady situations, which clearly appears, by arguments we have adduced, that it is, and that it is consequently unfit to plant on all soils, and in every situation *indiscriminately*: and to point out and recommend a *system* by which their culture may be effected, with the utmost certainty of obtaining *ample crops* of superlatively large and fully ripe fruit in the *driest seasons*, (in which their fruitage generally fails from drought or heat,) on being protected by *temporary shade*,

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*at trifling charge, with the further advantage of cool and natural soil.*

It is easy to prove, that STRAWBERRIES are, in general, natives of woods, and consequently of cool soils and shady situations ; therefore are incapable of extreme heat or drought.

### RASPBERRY,

ALTHOUGH not generally understood, is evidently a *bog soil plant*, or *plant of shade* by nature ; the original red sort *growing wild in woods where the soil is cool and soft*, as in the north of England ; and they also succeed beyond conception *on fenny and boggy soils*, even contiguous to very large bodies of standing water, where the soak is constant, and in the winter season excessive.

In such situations, both wood and fruit will generally prove doubly large, and prolific in the extreme ; whereas, those planted on hot and dry soils produce only the most inferior and under-sized fruit.



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## GOOSEBERRY.

By the cultivation laid down, the fruitage of the several varieties may be obtained in far greater perfection of size and flavour than by former practice ; together with an easy and certain method of preserving its fruit in full perfection beyond the common season of maturity. Also, a *novel System* of propagating the several sorts, by planting cuttings taken from *bearing trees*, when their fruit is fully ripe, by which much time will be saved, and the particular species with certainty be obtained.

It is easy to infer, that the very same sort of Gooseberry, by different soils and management, has produced very different-sized fruit, by the annual exhibitions in many counties.



*IMPROVED*  
**Culture of *Fragaria*,**

**THAT UNIVERSALLY ESTEEMED FRUIT**

**THE STRAWBERRY.**

**C**ALCULATED to prove that the mode of cultivating this plant, in the several varieties generally adopted, is ungenial, and consequently erroneous ; which may be considered the common cause of partial production, and in many instances a total miscarriage of their crops of fruit.

Wherein is pointed out, a cheap and rational mode of cultivation, without liability to sterile plants, decay of bloom by drought, or defalcation of fruit from scorching sun : by which ample crops may be uniformly obtained in almost every situation ; and, except in rainy seasons, in the fullest perfec-

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Season for forming the Beds.

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tion. Together with an easy and effectual method of preserving their fruit beyond the common season of maturity.

The most favourable season in which to form these beds is the autumn ; preferring September, or the early part of October, as may be most showery, in order to the young plants establishing themselves before winter, thereby to avoid the liability of being thrown out of the ground by frost and vermin, as well as rendered competent timely to produce good fruit the ensuing summer.

The more certainly to procure prolific, and guard against sterile plants affording false or insufficient blossoms, we recommend an attention to the following preparatory measures, with full confidence, that where due attention is paid to the directions prescribed, ample success will crown the efforts of the diligent gardener.

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Directions for transplanting.

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*Transplanting Runners and Off-sets.*

ABOUT Midsummer, and in as moist weather as possible, with a small and close three-tined fork, from young beds not more than two or three years old, take a sufficient quantity of the strongest and first-formed young plants, by runners or off-sets, growing nearest to each bearing parent plant only, and with all the fibres possible; previously well watering the bed from whence they are intended to be taken, if the ground be hard and dry, in order that they may rise with entire roots; when cut off the strings close on each side, and early as possible plant them in nursery beds, four to six inches apart, evenly throughout, and in any situation shaded from mid-day sun, where the soil is good to promote growth, and strengthen the young plants. Immediately after planting, well water them throughout, and repeat the same in evenings, during hot and dry wea-

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Situation and Formation of the Beds.

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ther, keeping the ground constantly moist, but not muddy wet.

*Forming the Beds.*

IN forming beds to receive the plants, the first thing which claims attention is their situation, which ought to be as open an exposure as can be obtained, there to form a bed or border three feet wide, pointing duly east and west, and extended as far as may be convenient, in order to receive, on the south side, a temporary shade or skreen, designed to afford friendly protection to the blossom and fruit, from the violent heat of mid-day sun, and that they may receive the benefit of early and late sun, after such skreen is applied.

That moisture and shade are natural, and genial to the growth and perfection of this race of plants, is easy to infer, from the cool and shaded situations in which the wild

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The most favourable Soils.

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varieties, indigenous to this country, as *Fragaria sylvestris*, or *Strawberry of the Woods*, is usually found growing, where the plants are spontaneously produced, and their fruit arrive at perfection without the means of cultivation ; whereas, such are rarely to be found growing on dry soils, and in open and airy exposures.\*

A further argument in favour of this idea, is, the liberal disposition of these plants to increase by runners, freely emitting fibres at every joint ; to receive and nourish which, shade and soft soils are admirably calculated, whilst dry soils and exposed open situations will prove unfavourable in the extreme.

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\* Miller, and others, observe, that the early scarlet fruited Strawberry is a native of woods, in Virginia ; and others assert, the large Carolinian to be an inhabitant of sylvatic situations in that country.

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Advantages of Situation.

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In creeping HERBACEOUS PLANTS, forming roots at the joints of the runners, in manner of the STRAWBERRY, it will generally be found that the growth and vigour of such are abundantly promoted by moisture and shade ; as in *Viola*, *Violet* ; *Glechoma*, *Ground Ivy*, &c. And of hardy trees and ligneous plants, whose shoots freely afford fibrous roots, adhering to other trees, or walls, for their support, as in several varieties of *Hedera*, *Ivy*, such, in northern exposures, will far surpass in growth those in more warm and sunny situations.

From the prevailing mode of planting STRAWBERRIES on any common earth, without discrimination, it may be supposed that an attention to soil is of trivial importance ; and especially as some eminent horticultural writers appear to have considered this as of little moment ; but in this we are not agreed, considering that every



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Advantages of Native Soil.

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plant worthy of cultivation deserves to be accommodated with the most friendly soil; and in cases where it can be conveniently obtained, that which is natural.

These plants growing in any common garden and earth, does not prove that every soil is alike calculated to produce abundant crops of well perfected fruit; therefore, clearly to conceive aright of the native and indigenous soil, may be considered one grand point obtained, and of the utmost importance towards success.

Whoever have directed their attention to the infinity of herbaceous productions, exploring the boundless varieties which the immense fields of nature present to the eye of the diligent observer, will readily discover, and be free to acknowledge, that every plant is found most freely to thrive and delight in that peculiar soil of which it is *indigenous*.

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Of the Formation of Soils.

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Hence appears the importance of a uniform attention in the cultivation of TREES, SHRUBS, and PLANTS of all descriptions, that they be accommodated with soil similar as possible to their native original earth, in order to being planted with success.

That these plants will grow on any common soil is readily admitted; but without a return by an adequate production of fruit, the planter would be ill rewarded for his attention and trouble.

Of the various soils which have come under our notice, that of rich light loam is to be considered favorable, from its soft and pliable temperature; but which will admit of considerable improvement, by the application of soft bog earth, incorporated with the most cool and rich manure, and will be found amply to improve their culture; that where the common earth is of the first men-

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Where Compost is necessary.

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tioned description, the moist and cool compost or manure recommended may, in all cases, be used with the greatest promise of success. But where such is not the natural soil, similar compost ought to be procured ; except in situations where the soil is found to consist principally of good bog earth : where the addition of neat, cow, or swine's dung, in good proportion, is all which can be further necessary. But where the common soil is the reverse to either we have described as friendly, it is recommended to form the beds entirely of the compost prescribed, which being required not more than one foot deep, the roots of these plants growing near the surface, sufficient quantity of bog earth, rotten tree soil, or decayed leaves, may be obtained in most situations. These beds require to be formed in all respects as the former, with the exception of digging out the common earth one foot deep, laying a part thereof on the sides

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Cool Soils most beneficial.

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and ends of the bed, to form the necessary embankment. On the soil becoming settled, smooth the surface with a rake, and plant them by a line at the same distance as in the other beds.

Those who have attended to the growth of these plants in fenny countries, where the soil is generally light, loose, deep, and of black complexion, without that silvery grit essential to the culture of American plants, Heaths, &c. and subject to standing wet in winter, proceeding from what is commonly denominated the sock, or soake, or what may be considered the humidity arising from the very low situation of these countries, which standing water, or soake, is always found in proportion to the depth of water contained in the dykes by which the several parcels of lands are intersected or divided, will have observed the astonishing progress and constant vigour of STRAWBER-

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Advantage also of Bog Earth.

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RIES universally thriving on these cool soils; whereas, it is to be remarked, that such planted on what is there denominated skirt-land, or what may be properly considered the exterior of the fens, or rising ground, where the soil, in many instances, becoming shallow, and frequently inclining to sand or gravel, from its natural warmth these fruits, in such situations, cannot, without the greatest difficulty, be obtained even in any tolerable quantity, from the liability of these plants to scorch on the early approach of hot weather.\*

As we recollect no instance in which HERBACEOUS PLANTS delighting in shade, will not freely succeed in bog earth, which, in our idea, appears, in every respect, adapt-

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\* Viewing the several varieties of Strawberries as natives of soft cool soils, and shady situations, shade and moisture are considered indispensable to their fructification.

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Much Warmth required for the Pine-apple Strawberry.

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ed to their culture; and from the advantages hitherto derived by its having been applied, we are free to recommend it as the surest preventive of miscarriage from drought, on the hottest soils. With a proper proportion of the manures pointed out as most cool, we consider this calculated to form a very superior and most genial compost for the cultivation of the **STRAWBERRY** in all its varieties.

That species of **FRAGARIA**, formerly called the green, or *Pine-apple STRAWBERRY*, with greenish fruit, and when ripe tinged with a faint shade of red, has been by many considered as requiring greater degree of warmth in its cultivation than any other variety; on which Miller has remarked, that, unless it be planted in moist loam soil, it is a bad bearer; adding, however, that in land where it succeeds, it merits cultivation. A proof this, that the soil has not always

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The most fattening Manures ; and their Superiority.

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been regarded. He also considers it one of the varieties of wood strawberry.

Admitting these his ideas to be well-founded, it appears we may conclude this variety to be what we consider each other species, a native of cool soil and shady situation.

*Cool Manures.*

HAVING described the soils most genial to this pleasing and profitable family of the herbaceous tribes, it remains that we point out those manures which will prove most friendly to their culture. As the importance of cool and soft soils has been urged, by the same parity of reason we recommend *only* cool, rich, and fattening manures: of these swine's, neat's, and cow's dung are to be considered superior to every other ; and especially on more light and dry soils. The unfriendliness of drought to the fructifica-

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The Formation of an excellent Manure.

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tion of these plants, being considered the common cause of miscarriage in their crops of fruit, to guard against it, is essential to obtain good production ; for which purpose, no manure can be better calculated than those above-mentioned. As manures are commonly applied to the use of the kitchen-garden, indiscriminately, it will be easy to select and hold in reserve those specified as peculiarly favourable to the present business.

Green or unrotten stable manure, however excellent for other purposes, ought never to be applied to the cultivation of STRAWBER-RIES; but in default of those we recommend an equal quantity of entirely rotten buttery, hot-bed manure employed in working frames the former spring, and the sweepings of streets in paved towns, which, well intermixed by repeated and regular turnings, will afford a good substitute; laying it



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A Substitute for Bog Soil.

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upon the ground doubly thick. The violent heat of stable manure having been thus exhaled, these ingredients together will form a soft, cool, moist, and excellent compost.

As bog soil suitably soft may not be afforded in every situation, convenient substitutes may be generally found. The best we know is black rotten tree soil, which may be collected in tolerable quantities from decayed trees of various descriptions, recollecting that this production is from the more hard wooded, as ash, elm, oak, &c. especially such as have been headed or cut down to form pollard; also fruit trees of large growth, as apples and pears; but that of willow, from its extreme lightness, will prove less beneficial, and being frequently less decayed, requires to be more finely sifted; but in default of these a very useful article may generally be obtained at a trifling expence, in the decayed foliage of

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**How to render light Soils serviceable.**

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trees of every description, from any contiguous plantation; which, on being collected together by rakes, or other implements, immediately after their fall in the autumn, and laid in large heaps in any obscure situation, by taking heat from the repeated heavy rains and falling wet throughout the winter, and being occasionally turned over during the spring and summer, by the following autumn will afford a very useful and ample supply.

These light soils well intermixed, and thoroughly incorporated with a proportionable quantity of neat's, cow's, or swine's dung, will prove extremely serviceable in whatever form they may be applied.

### *Compost.*

THE proportion of the articles we recommend as proper and necessary to form a

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**Method of preparing Composts.**

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compost, in which to plant Strawberries, and apply to the beds for an autumnal dressing, is as follows : One half of fresh or maiden earth from a rich pasture ground of cool, soft, and loamy texture, taken one whole spit deep with the turf; one fourth of soft and black bog earth, or of any other substitute that can most readily be obtained; with one fourth of rotten neat's, cow's, or swine's dung; or in default of this, the most rotten hot-bed manure, well incorporated, which will be most readily effected by laying the whole together, and frequently turning it over during six, nine, or twelve months.

The peculiar method of preparing compost will be found more particularly explained in the culture of *Ribes Grossularia*, —the Gooseberry.

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Directions for preparing the Beds.

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*Planting the Beds.*

In September, or early in October, when showers most prevail, transplant those which have been placed in nursery beds into situations where they are to remain, and as near to water as may be convenient.

In preparing these beds for the reception of the young plants, mark out the ground three feet wide, evenly chopping down the earth two inches deep, with a spade, on each side, and close to the line within the bed; then dig out the soil regularly one half a common spade deep, and throw out the crumbs, laying the same regularly on the outside each line placed to form or mark out the bed. This done, level the undug ground within the line designed to receive the plants, affording it a handsome dressing with the rich and cool manure we have prescribed, six inches thick, evenly throughout

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**Directions for preparing the Beds.**

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the bed ; which being thus prepared, proceed to plant in the following manner :

At either end, begin the work by throwing out a trench with a spade, as in common digging ; which must be wheeled to the opposite end, in order to complete regularly the digging of the bed.

The better and more speedily to effect this business of planting, especially where large quantities are required, let one person be employed to take up the young plants, with great care that all roots possible, and a small proportion of earth, be obtained, laying them on each side the bed, at distances where they are likely to be required, say two plants on each side of the bed about one foot apart, preferring a moist or cloudy day.

Being thus prepared, immediately pro-

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**Directions for planting the Beds.**

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ceed to the business of planting before the roots become dry, in the following manner : The ground being evenly dug, six inches from the end of the bed where a trench was first formed, with a straight staff or ruler three feet in length, and marked into four equal divisions one foot apart, lay such ruler exactly across at each end, reaching within about three inches of the side of the bed, gently pressing it upon the fresh dug earth to form a line for the reception of the first rows of plants; when, with the finger, opposite each end, and at the two divisions in the middle of the ruler, mark on the side toward you the equal distances to receive four plants in such first line across; then, with either hand, form holes by drawing the soil towards you, each sufficiently large to receive a plant with its entire root, and return the soil to make even the surface about the plants. The distances designed for these lines across the bed throughout being one

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**Directions for planting the Beds.**

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foot, provide two equal measures of such length, to apply to each side of the bed; and having dug the ground sufficiently far to receive a second row of plants, mark out the line across with the ruler as before; when plant three in the second, and four in the third, row, according to quincunx order, by which is intended four plants formed in a square, and the fifth placed in the middle, thus \* \* \*, which will afford a greater scope for the growth of the plants than if placed in exact squares, observing the same method throughout the bed. The entire length of ground being thus planted, earth up, with a spade, each end of the bed in manner of the sides, to form an even, regular, and complete embankment four inches above the surface throughout, the better to receive and retain all copious waterings and heavy rains, thereby to facilitate the growth of plants, invigorate their bloom, and promote fructification.

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Directions for securing the Embankments.

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On the business of planting being completed, afford each bed a light but somewhat copious supply of water ; and should the weather continue warm and dry in the autumn after planting, moderate waterings must be applied until the plants are well rooted.

The embankment, on becoming impaired by severe frosts, or winter rains, will require to be completely repaired with the spade, early in the spring, or before the commencement of dry weather.

As it may frequently occur that runners and off-sets of particular species cannot be obtained to plant on nursery beds in July, a practice we earnestly recommend, Strawberry-beds may be very successfully planted with the strongest off-sets and runners taken from bearing plants growing on young beds in the autumn season ; but with these con-



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Clearing the Weeds.

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sequent disadvantages—the liability of obtaining barren plants, and the certainty of an inferior production both in size and quantity of fruit the season after planting.

We do not recommend forming plantations of this description in the spring; except in cases where plants cannot be obtained at the more favourable seasons; as such will rarely afford fruit the same year, and but little time in the end will be gained.

As the spring advances, on the morning of a fine and dry day, with a hoe of convenient size, cut up all young weeds appearing between the plants and throughout the bed, and rake over the surface as evenly as possible, clearing away all such rubbish as the rake may collect.

In April and May abundance of strings and runners will be found to proceed from

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Of clearing the Runners.

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the sides of these plants, spreading over the surface of the ground, of which they require to be early and frequently divested, by pulling them off close to the plants in the former month, and continuing such practice regularly over the bed every two or three weeks throughout the summer, or at least until the crop of fruit is matured and collected, entirely clearing away the whole ; the growth of which being suffered, will not only enervate the parent plant, but considerably affect the vigor of its bloom and fructification.

In the Alpine, which is a perpetual bearer by runners of the same year's growth, soon after they appear in the spring, thin them regularly by pulling or cutting away the more weak, and leaving only a moderate supply of the largest and strongest, to produce fruit throughout the summer : but in the autumn, when the beds are about to

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### Shading the Plants.

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be dressed, it is of importance that all and every of the runners thus produced be forked up clean, and taken away.

Early in May, as the plants advance into bloom, to effect the necessary shade for protection from violent sun, apply the wattled hurdles hereafter described ; placing them in one direct line on the south side the bed eight or nine inches distant from the nearest row of plants ; and as the season becomes warm and dry, it will be necessary to water them in the following manner.

### *Watering the Plants in Bloom, &c.*

INVARIABLY perform this business in an evening on the surface of the beds inclining to be dry, when an ample supply will be necessary, which requires to be administered lightly, but copiously, with a pot or pan, having a moderate rose, during the season of bloom and growth of the fruit, even to

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**Watering the Plants.**

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deluge the bed, the more fully to establish the blossom and fruit, by which future waterings will become less frequently necessary.

In this shaded situation, the heavy falling rains and water administered being thus confined by the embankment, and the beds completely soaked throughout, few repetitions will be necessary, where the soil is moist, and situation low and cool.

Every cultivator of the **STRAWBERRY PLANT**, by the usual method, has been led to consider frequent and plentiful waterings in dry seasons essential, not only during the time of bloom and setting their fruit, but until the latter have nearly attained their full size; an evident proof that moisture is considered by those interested in its culture of real importance to its fructification; but it requires to be recollected, that the most copious supplies of water in hot

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**Planting in shady Situations.**

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and dry seasons, especially in open exposures, can in no cases prove abundantly beneficial, except where the ground is remarkably low and cool. Hence the importance of moderate watering.

How far the practice we recommend, with a view to effect permanent moisture throughout the critical periods above alluded to, by planting in such shady situations, secure from violent sun, in beds composed of soft, cool, and rich, soils and manures, formed not only to receive but the better to retain all occasional waterings and falling showers, which in such exposure must be considered of far greater permanency, and consequently render future supplies of watering less frequently necessary, is to be considered rational, is submitted to the candour of the scientific horticulturist.

Notwithstanding the advantage afforded

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Protection from the Wattle Hurdle.

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to the plants by the skreen or shade during the season of bloom, and until the fruit are somewhat advanced in growth, on the weather proving warm and dry, supplies of water are to be considered essential; but from the friendly protection afforded by the watted hurdle, only sufficiently often to keep the ground moist, not constantly wet, will be necessary, which will abundantly increase the size of the fruit.

On deluging the earth, within the embankment of each bed, in such shady situation, future supplies cannot be frequently necessary, nor until the soil of the surface inclines to be dry.

This shade, or skreen, we recommend, will, in general, be found both cheap and convenient, the article being to be considered comparatively of small cost. There are few counties in which the use of the

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Substitute for the Wattle Hurdle.

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hurdle is not generally known for its utility in agriculture; and for the special purposes of penning or fencing off turnips and cole-seed for the feeding of sheep ; and being required in the present business at a season when they are to be considered useless for almost every other purpose, but little charge can be supposed to be attached to their being thus employed ; and the light wood used in their formation, required for the purpose of wattleing between the bars, being of little other use, may be applied for fuel at the end of the season. Should an objection be made to this shade, under an idea of its unsightly appearance, others equally beneficial may be formed, by nailing thin bars of light wood half inch wide, and at such even distance from each other, on a frame of similar form, but more finished make ; but which, from the present high price of wood of every description, will be found far more expensive, without the least advantage in point of utility.

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Formation of the Watted Hurdle.

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From the ready admission of air through the wattle-work, to invigorate the plants throughout the time they are applied, they are to be considered far superior to any close shade whatever.

*To form the Wattle Hurdle.*

Provide a sufficient number of light-wooded hurdles five to six feet in length, and about three feet deep from the upper to the lower rail, when with smooth branchy boughs of willow, or other light, straight, and pliable wood, six feet long, wattle each hurdle to the bottom, by fixing these boughs uniformly between the three rails of which the hurdle is composed, spreading the small branches in such manner as to admit between the wattle-work about one half the mid-day sun regularly throughout the bed.

On the south side the bed or border of plants, place these hurdles in a direct line,



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Willow preferred in Skreens.

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as has been directed, first making holes in the earth with an iron bar to receive their pointed stakes, and with a mallet or beetle drive them into the ground, until the lower rail becomes even with the surface of the earth. To prevent their being blown down, secure them by affixing other stakes on the south side of the hurdles, taking care to keep them erect.

Branches of willow, well furnished with long pliable side shoots, on account of their smoothness and lightness, and being attainable in most situations, are to be preferred to every other.

The advantages resulting from this favourable skreen, in tending to promote growth, and secure good crops of these fruits, will appear obvious in reflecting on the peculiar benefits which the plants must enjoy in such situation, having the early

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Advantages resulting from Skreens.

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morning and late evening sun, in hottest days until near eleven, and after three o'clock ; and being in this northern exposure favourably refreshed by the most friendly shade during the violent heat of mid-day sun, the entire crop may reasonably be supposed to continue in one constant and uniform state of vegetation, without the liability of blossoms falling off, or the young and tender fruit being checked in their growth by scorching sun ; calamities which frequently occur in more exposed situations, where, if the summer proves hot and warm, the most abundant waterings will prove of little service either in setting blossoms or procuring fruit, especially where the common mode of forming these beds has been adopted, leaving the ground or pathway on each side the lowest, which invariably runs off the greater part of rain, and other waterings falling on the plants ; whereas, from beds formed in the manner we have directed,

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Watering to be observed previous to removing the Shade.

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somewhat lower than the level of the common ground, regularly embanked, to retain all waterings and falling rains, shaded from the violence of scorching sun, and supplied with only occasional waterings at but little trouble or expence, incalculable advantages may be expected.

Should it be objected, that perpetual shade will tend to injure the flavour of the fruit; we reply, that the skreen we recommend is so constructed as to admit of being wholly taken away at leisure, and which is considered indispensable on the earliest indication of the fruit to ripen, by inclining to their natural colour, in order to their receiving all possible sun for their full perfection, and which they will endure, affording the beds an ample watering on the evening before the shade is removed, and afterwards repeating such watering, in proportion as the weather proves hot and dry.

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Good flavoured Crops produced by having the Sun.

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It may also be remarked, that in moist seasons, such shade will be found of little use, crops of strawberries being general with little attention in most situations in wet and cloudy summers: but it deserves to be understood that crops thus produced, having the advantage of all the sun which the usual time of ripening affords, will be found equal to any other; and in common, but more especially in warm and hot seasons, ample crops of full-grown fruit may be uniformly looked for; while those indiscriminately planted, without regard to soil or exposure, notwithstanding repeated liberal and expensive supplies of water in dry seasons will, in general, produce, at best, partial crops, or diminutive fruit.

From what has been stated on the advantage of shady situation, some persons may, with apparent reason, incline to consider any common north border eligible. Such

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Fruit ill-flavoured if obstructed from the Sun.

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we admit to be favourable to the growth of the plants; but where it is not duly formed, pointing directly east to west, or is subject to the least obstruction from trees or buildings at either end, to prevent access of early and late sun, the fruit must prove, in a degree, ill-flavoured; and admitting that they receive this advantage, the substantial and permanent shade of wall or other close fence, totally excluding mid-day sun during the time of ripening, must render the fruit far inferior in point of flavour than in situations where the temporary shade is applied, which can at this peculiar season be readily removed, in order to the fruit having the benefit of the sun to its full maturity.

In cases where it is required to retain these crops of fruit beyond their common season; by continuing the shade, they will be well preserved; except in moist and rainy seasons, when they will become liable

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Jerusalem Artichokes afford a most refreshing Shade.

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to injury from snails, and subject to mould and decay ; but when designed to preserve STRAWBERRIES in considerable quantities, and as long as possible after the time of ripening, it may be best effected by planting as early as October preceding, in one direct line, nine inches distant from that in which the skreen by hurdle is intended to be placed, and on the south side of the same :

And to afford a more widely extended shade, roots of *Helianthus Tuberosus*, commonly called *Jerusalem Artichoke*, in manner recommended hereafter, from their broad foliage, will, in the hotter months of July and August, be found to afford a more cool and refreshing shade; when the wattled hurdles, as far as they extend, may be entirely removed.

In many families it is considered of great importance, and no expence is spared to prolong the crops of these fruits to the ut-

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**Rain or Dew Droppings from the Artichoke injurious.**

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most extent of time possible; to effect which, the peculiar excellence of the shade afforded by these lofty and erect growing plants is most admirably calculated, and will be found far superior to any close fence, as by a wall or paling, admitting the free circulation of warm air and drying winds, essential to maturing the fruit; from the want of which, in confined situations, and especially in moist and cloudy seasons, these soft, tender, and delicate fruits will be found extremely subject to decay by mould and rot.

As the plants of the artichoke advance in growth, they will not unfrequently incline forward, and become pendent over the STRAWBERRIES bearing fruit; which requires to be guarded against as much as possible, as the drops of rain or dew collected on their broad foliage falling on the fruit will prove injurious; but this inconvenience may, in a great measure, be guarded against

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**Description of the Jerusalem Artichoke.**

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by cutting close away, with a sharp knife, the lateral young shoots proceeding from the upper part of the stems, in July and August; which will otherwise incline the stems to lean or fall sideways.

*Culture of Helianthus Tuberosus.*

THE root of this plant bearing some resemblance to that of potatoe, may be considered by some persons in its nature as analogous; but such idea is erroneous, the former being perennial, and the latter annual in duration; that like most other perennial herbaceous plants, the Jerusalem artichoke being planted early in autumn, its root being impervious to frost, will more early and freely vegetate the following spring, and effect a far more speedy and effectual shade than these planted in the spring; observing to plant them soon after they are out of the ground as possible, as on the roots becoming dry their vegetation will be retarded.



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*Autumnal Dressing the Beds.*

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To promote the vigorous growth of these plants, in order to obtain a more effectual shade, it will be necessary, on their having attained about one foot in height, to earth or mould them up on each side with a broad hoe, drawing the soil towards the plants, as is common in the culture of potatoes, thereby cutting up all weeds growing on the surface; which will abundantly strengthen and enable them to afford a more early and effectual shade.

*Autumnal Dressing the Beds.*

PRIOR to this business, let the beds be carefully looked over by boys, pulling off all runners which may have escaped notice during their growth in the summer season. About Michaelmas, when the ground is tolerably dry, and before autumnal rains fall, it will be necessary to cleanse the beds from all weeds throughout, by hoeing over the

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*Autumnal Dressing of the Jerusalem Artichoke.*

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surface on a dry day, with a strong four or six-inch wide hoe, chopping over and breaking up entirely the ground two inches or more deep between the plants, carefully pulling out and casting away all weeds which may be found; this done, with a round-headed rake of convenient size, immediately smooth over the entire surface of the bed; after which, afford a good dressing with the same cool and rich manure applied at the time of planting, by laying it two inches thick between the plants throughout the bed; which will most easily be performed by taking it out of scuttles or wheelbarrows on each side the bed, on the point of a narrow spade, laying the same at such equal and convenient distances as to admit of its being afterwards spread evenly by the hand, or with hoes of convenient width, two inches thick all over the bed. The beds being completely dressed thus early in the autumn, the manure administered will be in

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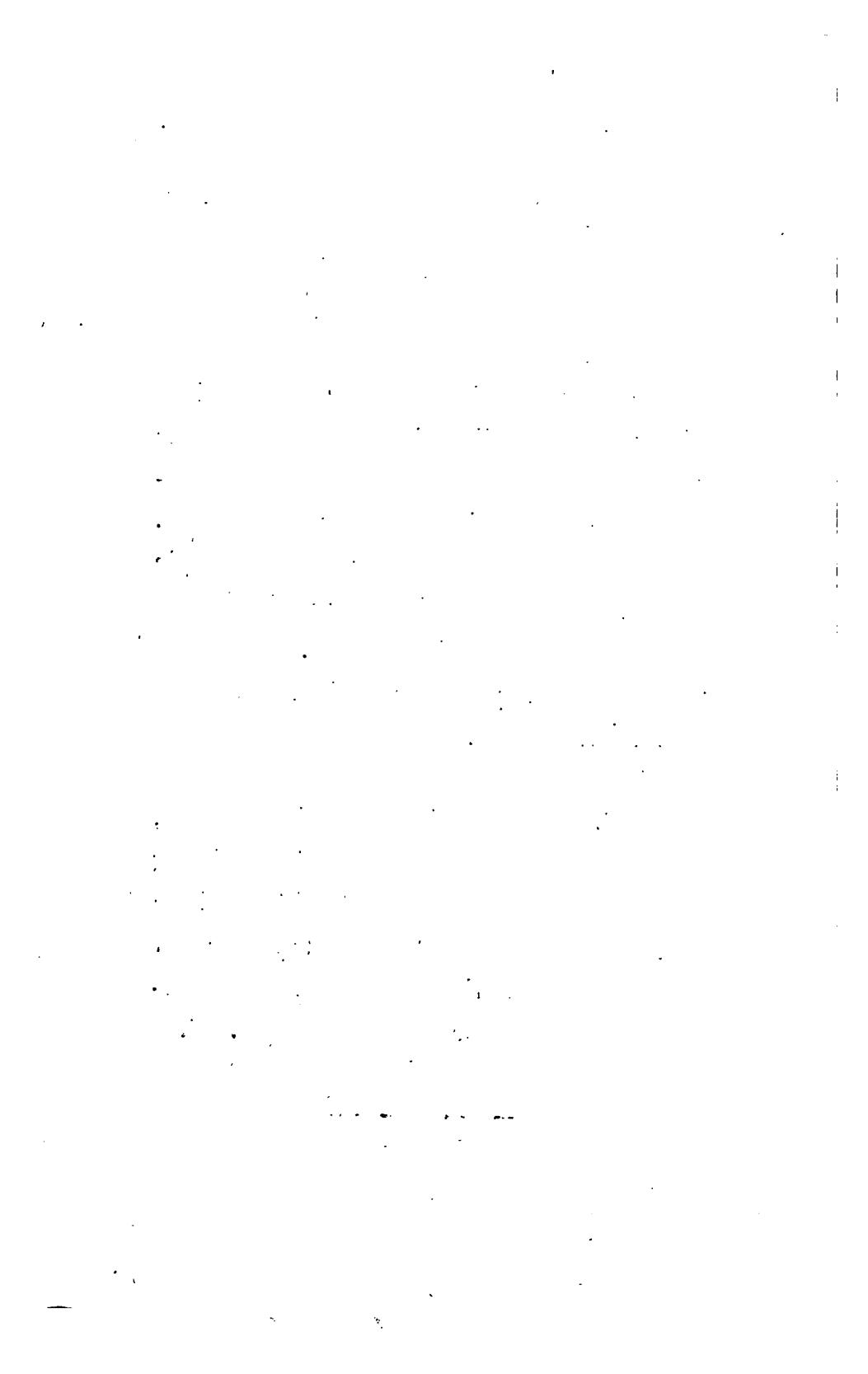
Autumnal Dressings to be attended to.

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good proportion washed into the ground by winter rains, and, together with the soil, become well settled to the roots of the plants, that on the earliest approach of spring, without the smallest impediment to their progress, they will have every possible advantage contributing to their full growth. The second season after planting, ample crops of Strawberries, in every variety, may with confidence be looked for. We refer to the former year for their spring and summer treatment.

The Strawberry being a very hardy plant, and of great durability, the beds, on being managed as we have directed, will continue in a full bearing state about four years ; but it will be peculiarly necessary that the autumnal dressings be punctually regarded.



*IMPROVED*

**Culture of *Rubus Idaeus*,**

**THAT MUCH-ADMIRE FRUIT,**

**THE RASPBERRY.**



*IMPROVED*  
**Culture of *Rubus Idaeus*,**

**THAT MUCH-ADMIRERD FRUIT,**

**THE RASPBERRY;**

**C**LEARLY demonstrating its usual cultivation to be unfriendly to the nature and constitution of the several varieties, and the immediate cause of inferior production, as well as frequent total failure in its crops of fruit.

Directing a rational and easy method of cultivating the various species without liability to decay of bloom by drought or sterility of soil, or defalcation of fruit from scorching sun, to afford strong fruit wood the second season, which are succeeded by an abundant supply from the bottom, in summer, for the next year's bearing.—They may

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Soils mostly to be preferred.

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be literally said to merit culture in every good garden, for their pleasant and useful fruit.

From the general practice of planting the *Rubus Idæus*, on any common garden ground, indiscriminately, the soil may be considered of trivial moment; but if these varieties are worthy of cultivation, they will, no doubt, be thought, by every amateur of fruits, to merit the accommodation of a soil perfectly genial; especially when it can be obtained at a trifling expence.

Of the various soils and situations in which we have noticed the growth of these plants, none have been more productive of strong, clear, vigorous, and healthy young wood, than those growing in fenny countries; and more especially on deep black and soft but cool soil, even in the lowest situations, and contiguous to large bodies of standing waters, as lakes, meres,



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Soils mostly to be preferred.

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&c. subject to a heavy and constant soak, throughout the autumn, winter, and spring seasons; and this where the natural soil is considered of inferior quality, with the further disadvantage of but little cultivation; yet under such circumstances generally affording the most abundant crops of fullest sized fruit, not in peculiar, but common seasons, without any perceptible difference of success in the varieties, except the red early Premier and yellow large Antwerp, which we have not noticed in these situations. In many other places in such countries, where the earth is naturally of richer quality, but cool, and with the further advantage of liberal cultivation, these plants growing in boggy soils, somewhat similar to the former, their productions have been far superior to any we have elsewhere witnessed, annually affording an abundant crop of very superior fruit. It has been not unfrequently noticed that in fenny

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Soils mostly to be preferred.

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countries, the same garden consisting of low and cool bog soil, and of more dry or skirt land, bordering on the high country, has afforded the most opposite productions of these fruits and plants: the former of very luxuriant growth in wood, and an abundant produce of superior fruit; whilst the latter, from the unfriendliness of a dry and warm soil, with the want of that moisture, most essential to their cultivation, have, in a few years, totally decayed away and died off, after the trifling product of small and inferior fruit, unworthy the trouble of collecting.

To self-propagating trees, shrubs, and plants, by suckers, as the several varieties of the Raspberry, cool and soft soils will not only be found the most favourable, but they appear more natural than any other, which affords presumptive argument in favour of the utility of rich, loose, cool, and deep

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Opinion of eminent horticultural Writers.

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soils in their cultivation, and especially as such plants cannot freely increase in very heavy and adhesive or dry and shallow soils; from which it is reasonable to infer, that they are indigenous to no other than soft and cool soils; as without such, it is evident that all plants thus increasing by suckers, could not make their way into the earth to receive sufficient nourishment for their support from the soil; and being thus exposed to drought, must form, at best, weak and insufficient plants; both which circumstances appear clearly to prove, that soft and cool soils are to be considered important and essential in the cultivation of these fruits.

The most eminent horticultural writers have agreed, that the common raspberry is a native of cool soils, and shady situations, and that it will not thrive on hot and dry ground; but we do not recollect to have

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Superiority of cool Manures to Loam.

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noticed the mention of bog earth as peculiarly favourable to this tribe of British fruits ; or that the plants would even thrive therein ; which, if well selected, and intermixed with the most cool manures, as neat's, cow's, or swine's dung, will prove infinitely superior to the richest loam ; and especially in situations where proper shade can be obtained, it will far surpass every other.

In default of the above manures, which, from their peculiar coolness, are to be considered preferable to all others, rich, well decayed, rotten, and buttery hot-bed manure may be applied ; but in no case ought green or long stable manure to be used in compost, as its natural heat would tend to subvert the purpose of promoting a cool soil.

Of the several descriptions of bog soil, none will prove so genial as that which is

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**Rotten Tree Mould good Soil.**

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as black and soft as can be obtained, with or without silvery girt, with which such soil sometimes abounds; but such as is obtained from low situations will generally be found the most cool and friendly; taking care that it be soft, and as much as possible free from large lumps, which are frequently too hard to pulverize; and where the ground intended to be planted is not thus boggy, the soil recommended may frequently be found in adjacent meadows, or other low situations; but in default of this, and where proper bog soil cannot be obtained, rotten tree mould of willow, or any other wood, will form an admirable soil for the plants; sifting out only the more coarse and larger pieces of decayed wood.

Where an opportunity does not offer to procure tree mould in sufficient quantity, rotten and decayed leaf soil may be applied with at least equal promise of success that

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Soft Bog Earth the most preferable.

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one or other are to be obtained in most situations ; and especially the latter, where there are plantations of large trees affording abundant foliage ; which, on being laid in heaps twelve months to rot, will afford an admirably cool and soft compost. As such will always prove more or less useful in the various branches of horticulture, it will generally be found advantageous to preserve them every autumn, which can be effected without further trouble or expence than barely collecting them together by rakes, &c. on their falling from the trees.

Plants of shade, as the Raspberry and Strawberry, will always be found to succeed freely in soft bog earth, and all fruits the production of such plants must find great advantage from temporary shade connected with a cool soil, as tending to promote growth, and increase the size of their fruits ; especially in situations where soft sun and air can

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**Method of preparing Bog Earth.**

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be received in good proportion ; as on the weather proving warm or hot, this will be abundantly effected, being protected from violence of sun at noon-day. The necessary culture of these plants appears to be as little understood, or at least regarded, as the Strawberry. Miller, Maw, &c. agree that both are natives of woods in the north of this kingdom, especially where the soil is light and cool ; but the perpetual shade of such situations can by no means be considered favourable to ripen and perfect their fruits.

Where proper bog earth can be obtained, it deserves to be preferred to every other in this business, and in situations affording such in tolerable quantities, it will be easily and cheaply procured ; little other trouble or expence being necessary than that of digging out only the softest and best soil, together with the turf, laying the whole in

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The mixing of cool Manures with Bog Earth recommended.

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one entire heap, six, nine, or twelve months to rot, in manner as is hereafter directed for Gooseberries.

As bog soil is the common production of moist and frequently watery situations, it will be always most easily obtained in the spring or summer; and that procured in the former season will generally be found sufficiently ameliorated for this purpose in the autumn, having laid six months to pulverize, by frequent turnings over and breaking the turf with a spade. Bog earth being frequently somewhat sterile, it will always be advantageous, where it is applied in the cultivation of fruits, to enrich such soil as much as possible, which will be best effected by intermixing therewith strong but cooling manures, in order to improve the size and quantity of such fruits. Towards the autumn, and some weeks before it is required, the better to incorporate the whole, apply



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Good Substitutes for Bog Earth.

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to three-fourths of the above one-fourth of rotten neat's, cow's, or swine's dung, reserved for the purpose; at first intermixing the same well together, that it may readily be well incorporated by future and frequent turnings over, until it is required in September or October, when it will be fit for use: this we consider the best soil in which the Raspberry can possibly be planted.

But as proper bog earth is not to be met with in every situation, it remains to direct to such substitutes as are best adapted to the present design; next to which, brown or black, but rotten-tree soil, which is invariably soft, as that obtained from the bodies or trunks of decayed ash, elm, oak, apple; pear, or willow, will be found to answer every good purpose, on sifting out the more large and coarse pieces of undecayed wood. This may be readily performed by exposing the whole to the sun and air a day or two, turning it over to become dry.

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Directions for collecting decayed Tree Leaves.

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In places where the willow, usually growing near to brooks and rivers, in meadows and other low and moist situations, is common, the greater supply may be obtained from these trees : but where a large quantity is required, the supply will probably prove short, which deficiency may be annually remedied, by seasonably collecting in the autumn fallen decayed tree-leaves, laying them in any obscure situation to rot, until they are required.

It will be most easy to collect decayed tree-leaves in considerable quantities in or contiguous to plantations, coppices, or woods formed of any deciduous trees, at the autumn season, immediately after their fall, and before they are blown away by high winds, common in October, by raking them together with large rakes of any description ; first in small heaps, then with barrows, skips, or other convenient articles, lay the whole together in any close situation, defended

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Treatment in the Spring.

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from the wind, in one or more large heaps, somewhat round or flat at the top, the better to receive the falling rains of autumn and winter; by which they will soon become warm, and subject to a constant moderate heat, completely rotting the whole during the winter season; but which will not be effected, on their laying dry, without being exposed to much wet.

On the advance of spring, and the weather becoming dry, turn over each heap, breaking with the spade, or a three-tined fork employed, all lumps or parcels of consolidated or dry leaves, in order to the entire bulk becoming pulverized as soon as possible; after which, reduce the number of heaps, by putting them together either in one or more larger lots than before, that the whole quantity be the more easily and effectually prepared for use.

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**Further Treatment to be observed.**

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If in removing the first formed heaps, it is discovered that any considerable quantity of the leaves remain sound, which can only happen from the want of wet, it will be beneficial to moisten them by a pot or pan of water, having a rose, from which they will more speedily become rotten. By afterwards turning over the whole once in two or three weeks, and affording a moderate supply of water as before to the undecayed leaves, by Midsummer, the whole will have become one general heap of soft and light soil, admirably calculated for the culture of plants requiring cool soils; and to render this competent to the production of their fruits in the fullest perfection, it will be only necessary to apply rotten neat's, cow's, or swine's dung, as directed, to be intermixed and incorporated with bog soil.

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Importance of Soils.

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*To form the Compost.*

APPLY one half proper bog soil, or either substitute described, as can be most readily obtained; one fourth fresh light loamy earth from a rich old pasture ground, and one fourth completely rotten swine's, cow's, or neat's dung; which, on being well incorporated, by preparing it in the manner directed hereafter for Gooseberry Compost, will prove most favourable to the growth and fructification of these plants in every variety, and considerable increase in the size and number of their fruits.

From the prevailing mode of planting Raspberries on any common earth without discrimination, it may be supposed that an attention to soil is of trivial importance, and especially as some horticultural writers appear to have considered this as of little

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Importance of Soils.

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moment; but in this we are not agreed, considering that every plant worthy of cultivation deserves to be accommodated with the most friendly soil; and in cases where it can be conveniently obtained, that which is natural.

These plants, growing in any common garden earth, does not prove that every soil is alike calculated to produce abundant crops of well-perfected fruit; therefore, clearly to conceive aright of the native and indigenous soil, may be considered one grand point obtained, and of real importance towards success.

The Raspberry being of very forward growth, the young wood will be early matured; and from their forming fresh roots in the autumn, by planting in September or early in October, the plants will become established before winter, and tolerable

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Objection to planting in September.

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quantities of good fruit may be obtained the first summer ; but if later planted, the production of the first season will be proportionably less.

The chief objection to planting these trees early in September, and before the leaves are wholly fallen, may be that the ground in a dry autumn is often insufficiently moist ; but this inconvenience will be easily remedied, by earthing up the sides of the trenches in which they are planted, and affording the bed an ample supply of water, with a pot having a rose, immediately after planting, making the soil muddy wet ; which is all that can possibly be required, and by which, during the continuance of mild weather, young fibrous roots will be freely produced, that they will be securely established against the drought of the following spring.

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Directions for forming the Beds.

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If the business of planting be deferred so late as Christmas, the plants will have formed young suckers half an inch long, by which the fruitage of the first summer will be materially affected ; that it will always be best to plant them out, as soon as they incline to shed their leaves.

*Forming the Beds.*

IN forming the beds, it will be found advantageous to fix on a convenient situation, low, cool, and moist, which will invariably prove favourable to the free growth of these plants in each variety.

Being provided with a sufficient quantity of bog soil, or similar compost, as is prescribed, proceed to form the beds or trenches designed to be planted, by digging out the common earth in one direct line, pointing east to west, one foot and a half wide, of



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Directions for forming the Beds.

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- the same depth, and of such length as may be convenient, marking it out by a line on each side. With a barrow, wheel away the first spit to any part of the garden where it may be required, laying the next spit regularly on each side, and on the ends of the beds, to form an embankment, the better to retain all falling showers, &c. in order to keep the ground more moist during the summer, clearing away all crumbs or loose mould from the bottom: then fill the trench somewhat more than even with the level of the ground with the soil or compost recommended, leaving the same about fourteen days to settle, previous to planting. It will
- be advantageous, especially in a dry season, to procure the plants from the nearest situation possible, to prevent the fibres becoming dried; and as their roots will require to be reduced to a convenient size to plant, care is requisite that no buds are cut off next to the stem, such forming the next

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Directions for planting the Beds.

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year's wood. On the soil being properly settled, level the surface with a spade, and proceed to plant in the following manner :

*Planting the Beds.*

PLACE a line exactly in the middle of the bed, throughout ; and on selecting the strongest and best rooted plants of each sort, plant them by digging out the soil or earth on either side the line, and at either end, when throwing away the first spit, let a boy hold the first plant near to the line without touching, when dig out the second hole to fill up the first, covering the root a little deeper than before, and very lightly • trampling the soil to the plant if it be dry, but not otherwise ; and so throughout the bed at the following distances, according to the size and growth of the different sorts, as the dwarf red early Premier, two feet ; those of moderate height and strength, as the

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Directions for planting the Beds.

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common red and white, also twice bearing, two feet and a half; and the red and yellow Antwerp, with others of larger growth, three feet apart.

On the ground being planted throughout, with a spade, earth up each end of the bed in manner of the sides, completely to form a regular embankment, about four inches above the surface, as in Strawberries, to receive and retain all copious waterings and heavy rains; thereby to facilitate the growth of the plants, invigorate their bloom, and promote fructification. This being done, smooth the surface of the bed with a small headed iron rake, on each side the plants; and on the weather being dry at the time of planting, afford one plentiful but light watering throughout, nearly to deluge the bed. Should the embankment become impaired during the winter, it will require complete repair by earthing up in the

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Directions for planting the Beds.

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spring, or before the commencement of dry weather.

Those who are anxious to obtain a good supply of Raspberries the first summer, will find great advantage from laying a coat or covering of long green or wet straw, not stable or horse-litter, on the surface throughout the bed, pressing it on the ground by beating with a heavy three-tined fork, that it remain not more than two inches thick; when cover the same with good common earth about an inch, that the whole covering be then not more than three inches thick; by which, the piercing sharp and cutting winds of spring and the greatest heat of the summer months will be most effectually excluded from the roots. On this covering being applied in autumn, it will be properly settled before the spring, without proving the smallest impediment to the growth of suckers affording a future supply.

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Of cutting the Plants.

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As the quantity of suckers thrown out is commonly superfluous, it will, in such case, be beneficial to reduce their number, by pulling away, with the hand, those of smaller size, when about a foot high, leaving not more than two or three young shoots to each plant; by which they will become more strong, and produce larger quantities of superior fruit.

*Cutting down the Plants.*

REDUCING or shortening the stems of these plants will be best performed in the spring, when it is probable some may require to be placed more upright, being blown aside by boisterous winds, or otherwise removed from that erect state in which they have been planted; and at which time all may conveniently be cut to any certain length, which will be most readily performed by holding upright the plant with either hand, and, at the same time, treading

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Of cutting the Plants.

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close the soil of the beds with the outer side of the same foot.

The reduction of the stems must be proportioned to their growth, leaving those shortest of the most inferior size, and others of largest growth most long, as the Dwarf early Premier, one foot and a half; common red and white also twice bearing, three feet; and the Antwerp and other large growing sorts, not less than four feet in length.

*Protection by temporary Shade.*

In May, when the blossoms are perfected, apply the wattled hurdle to afford a shade for their protection, and promote the setting of fruit, by placing as many wattled hurdles in manner directed for the culture of Strawberries, as may be found convenient and necessary, in a direct line, on the

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Protection by Shade.

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south side the plants, and about ten or twelve inches distant; that the points of the hurdles be driven into the common earth, which will be most firm for their support.

Thus protected from the heat of sun, and preserved from drying winds, but little water can be necessary, except in hot seasons; when once deluging the surface of the beds may be very advantageously performed, as it will render other light waterings totally unnecessary; especially as all heavy rains and waterings thus confined within the embankment will most effectually contribute to the retention of moisture, that few repetitions can be requisite, especially where the soil is cool, and the situation of the ground low.

As in Strawberries, the same advantages will be found from the friendly shade af-

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Protection by Shade.

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forded by the wattled hurdle ; as well to protect the bloom from decay by the heat of the sun and drought, as to promote an abundant increase in the growth and size of these fruits, and which may be taken away at pleasure to admit all possible sun, in order to effect their maturity. No article can be better calculated to protect the blossom from the violent heat of the sun, or promote an increase in the size of their fruits, especially where the plants are of humble growth. Its formation has been described under the article Strawberry ; and the same advantages will be found to result from its application in the present instance, tending to secure good crops of fruits in all seasons ; recollecting, that the height of the skreen must be proportioned to the altitude of the plants ; and such shade or skreen will admit of being removed and taken away on the earliest indication of the fruit to maturation, by inclining to their natural complexion,



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Protection by Shade.

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for the admission of all possible sun fully to perfect them. The shade here recommended is to be considered totally unnecessary in moist and cloudy seasons; and it requires to be recollected, that where these borders are formed in situations not pointing duly east and west, and in other than open exposures where the early morning and late evening sun is prevented, it will be less advantageous to the perfection of the fruit, especially in close and confined situations; as from a want of the early and late soft sun, and a free circulation of air, the fruit will prove of very inferior flavour, and be subject to decay by mould or rot. By a continuance of this shade beyond their common season of maturity, the fruit may be preserved a greater length of time, which in many instances will prove desirable; and for those which are of the largest growth, and the greatest altitude, it will be necessary that the hurdle be wattled with branches of

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Of renewing the Plantations.

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sufficient length entirely to defend the ripe fruit from the mid-day sun. But it will be in great danger of being devoured by thrushes and blackbirds, particularly in large gardens affording shade ; to which, at that season they commonly resort, and frequently in considerable quantities, especially on the weather proving warm or hot, if unprotected by netting or other open covering freely admitting air, being securely placed over the plants.

The Raspberry being a plant remarkably prolific in its growth, more numerous suckers will be produced as the roots increase in size and strength ; which will have a certain tendency to render the shoots weak, and reduce the size of the fruit ; that it will be advantageous to renew these plantations at farthest every fourth year.

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Directions for the Autumnal Dressings.

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*Autumnal Dressings.*

This work requires to be done as early as the fall of the leaf, when fresh fibres are about to proceed from the roots ; which will be best performed by a broad three-pronged fork, with which lightly dig or fork over the surface of the trench or bed, by which the litter strewed over the surface will contribute to the nutriment of the plants.

In the spring, smooth the surface with a fine rake, which will effectually destroy all young and tender weeds ; when break off the decayed stems close at the bottom, reducing the number of such as are green, to two or three at most, and shorten them to proper lengths, as has been directed.

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*IMPROVED CULTURE*

• OF

**Ribes Grossularia,**

That pleasant and useful Fruit,

**THE GOOSEBERRY.**



*IMPROVED CULTURE*

OF

**Ribes Glossularia,**

That pleasant and useful Fruit,

**THE GOOSEBERRY;**

**D**ESIGNED to point out a rational and efficacious process of cultivation, by which the fruitage of the several varieties may be obtained in far greater perfection of size and flavour than by former practice; together with an easy and certain method of preserving its fruit in full perfection beyond the common season of maturity.

To which is added, a novel system of propagating the several varieties, by planting cuttings taken from bearing trees, when their fruit is fully ripe; by which, with the utmost certainty, any particular variety

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Preparations for planting.

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may be obtained, and much time gained in the growth of the young plants.

Those who are anxious to obtain superior Gooseberries, will not regard the little extra trouble attendant on the necessary preparations ; which, at most, will be of but trivial expence, and that principally in the preparation of soil peculiarly favourable ; which will, in most situations, be found essential, except in newly-formed gardens, and on a soil directly similar to that we recommend : to obtain which, the following directions are given. Such must be procured in quantities, in proportion to the size of the plantation intended to be made, as the entire bed formed will require to be completely furnished therewith ; but as such soil will be abundantly found, and readily obtained in most situations, it deserves to be recollected, that beds thus well prepared, will, with slight annual winter dressings, with



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The most preferable Soils.

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rotten hot-bed manure, as has been recommended, remain many years in good state, and be capable of affording large quantities of excellent fruit a considerable length of time.

*Favourable Soil and Compost.*

THE best soil which can possibly be procured for this purpose, is fresh or maiden earth from a rich pasture ground, of light but fat mouldy temperature ; and, if possible, of a soft loamy texture. Of such earth, take one whole spit deep with all the turf ; to which add one fourth of completely rotten horse or stable litter, preferring that from an old hot-bed made in the former spring ; which, from its softness and greater readiness to intermix with new soil, will be found preferable to every other ; and also one fourth of the finest soft and black bog earth that can possibly be procured, or in de-

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Directions for forming the Compost.

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fault of which the same quantity of the darkest colour tree-soil, preferring that from the more hard-wooded trees ; as oak, ash, elm, or fruit-trees, such being most black and soft ; or the same quantity of fully rotten and decayed tree-leaves, recommended in the culture of Raspberries ; all which may be obtained at a trifling expence ; when mix the whole regularly together, laying it in one narrow heap or ridge, about a yard high, in any situation fully exposed to the sun and air, there to remain six, nine, or twelve months, as circumstances may admit ; turning over the whole every two or three weeks on the weather being favourable, that the entire heap become thoroughly incorporated ; and the longer time the compost remains in this state, the more advantageous it will prove to the young plants and fruits.

This compost being formed early in the spring, and duly prepared by repeatedly

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**Advantages of Bog Earth.**

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turning over, will be in fit condition to apply in the business of planting, either in September or October, as may be required; when proceed to mark out the ground and form the beds in the following manner:

Persons unacquainted with the use of bog earth in the culture of fruits, will probably express their surprise at its application to these common and hardy trees, growing on almost all soils, and in every situation and exposure; but of the Gooseberry, as well as most other trees, it may be said to have its peculiarly favourable or genial soil: such, by practice, we have discovered to be bog earth, applied in a proper proportion, having an evident tendency to ameliorate the earth in which these trees are planted, by rendering it soft and open to receive the smallest fibres of these finely-rooted plants, and cool to promote increasing growth of their fruit during the warm summer months

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Summer in North America unfavourably hot.

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of June and July. Whoever have attentively noticed the growth of the trees in various soils and situations, will have observed those growing on dry soils, however well cultivated, to have produced fruit of very inferior size, and this in common seasons, when our summers have not been unusually warm or hot. And as a farther proof that warmth of sun, in conjunction with a hot soil, is unfavourable to the perfection of Gooseberries; it is a well-known fact, that in the State of New York, in North America, where the summers are more hot than in England, that those of larger size taken from this country, there produce fruit of such insignificant growth as not to merit culture: and it may invariably be observed of the practice of cultivators of this fruit, in the habit of exhibiting their superior productions at annual meetings, as in the several counties of Warwick, Northampton, Leicester, Nottingham, Lancaster, &c. that

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**Directions for forming the Beds.**

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a preference is generally given by such connoisseurs to cool and rich soils.

*Forming the Beds.*

IN this business, peculiar attention must be paid to the situation; observing, that the trees require to be planted in a fully open exposure, unannoyed by large trees or buildings, both in east and west aspects, the more fully to admit all oblique or early morning and late evening sun in the warm summer months, the more freely to promote fructification, and full growth of their fruit.

The ground on which this plantation requires to be made, must be marked out four feet wide, evenly by a line, and in one uniform direction, of convenient length, as circumstances may require, or the extent of the garden may admit, pointing duly east

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**Directions for forming the Bed.**

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and west. Having securely placed the line on either side, evenly chop the ground two inches deep on the surface within, on both sides the bed; when dig or throw out the common or natural soil one spit deep throughout, wheeling away the earth by putting the same into barrows, to be taken away to the most convenient situation; then with a broad shovel, clear away by throwing out all crumbs or loose mould at the bottom of the bed, after which, dig out a further half spit of the lower soil evenly throughout, clearing away the crumbs as before, thus making the newly-formed bed about half a yard deep. On the common earth being thus removed with barrows, wheel therein a sufficiency of the same soil or compost prepared to fill the bed, leaving it two or three inches higher than the surface of the ground, that it remain even therewith, when the compost has fallen by sinking to a level with the common earth. In two or three

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Proper Season for transplanting.

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weeks it will be fully settled to admit of planting: for which business a dry day only is to be considered favourable.

These plants maturing their wood more early than the generality of fruit-trees, will admit of being planted in autumn as soon as their leaves have changed colour, or began to fall off, which will happen to those growing in sunny and hot situations; as soon as September, or early in October, when they may be safely transplanted to the situation in which they are intended to remain; by which, as they will be less liable to injury from drought in case of an ensuing dry spring, a tolerable proportion of fair fruit may, by such early planting, be obtained the following summer, and, at least, sufficient to determine their varieties. Should the weather prove dry at that season, it will be easy to furnish these newly-planted trees with one or two soaking waterings, to pre-

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Directions for planting the Beds.

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vent the young wood becoming shrivelled or dry, to the injury of fruit buds formed for the following season, and which will render watering in the spring less necessary.

*Planting the Beds.*

IN preparing to plant, with a shovel or broad spade make even the surface ; when place a line throughout the bed eight inches distant from the south side, and measure off the distances for the plants in the rows exactly three feet apart ; and on the south side the line placing small sticks or other marks regularly close to the line throughout the bed, whereby to plant the young trees without the ground being trampled by the persons digging, or holding the young trees. Begin to plant at either end, by throwing the soil away from out of the first hole ; when apply the plant, and earth it up with soil from the second mark, thus completing



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**Directions for planting the Beds.**

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each row, taking care to plant all close to the line; after which remove the line to the opposite side of the bed, marking it out by the sticks in the same manner, and at an equal distance on the north side as on the south, placing the plants not oppositely, but in the intermediate spaces, that they appear in triangular order.

The general method of planting Gooseberries adopted by common gardeners, from six to eight feet apart, has been considered a proper distance for these plants; which being but little pruned, and suffered to remain many years, become very large, and assuming a tree-like growth, but unproductive of other than under-sized and inferior fruit; but as small or young trees, with little bearing wood at most will be required to our present purpose, the distance of planting recommended is fully sufficient; as observation and experience clearly prove,

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**Directions for Pruning.**

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that fruit of superior size and flavour can only be obtained from young trees in well thinned wood.

### *Pruning Trees.*

IN the culture of these trees, it is requisite that the business of pruning be well understood; and as both the old and young wood annually bear fruit, there can be less occasion for a redundancy of young shoots remaining on the trees; and being naturally of very branchy growth, it will be necessary to reduce the number of shoots materially; recollecting, that every spur or knot of the old wood will afford fruit or bloom; and that those of moderate and free growth require to be left in preference to the more luxuriant. Such healthy young wood remaining on the trees at equal distances as possible, not less than six inches apart, will much contribute to the increased

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Application of the Wattled Hurdle.

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growth and size of the fruit ; and as a farther auxiliary, it will be equally necessary to guard against shortening any young branches in the winter or spring pruning, which remain for fruit, as it would tend to promote numerous lateral shoots, and invariably prove productive of much superfluous wood.

The size of this fruit in its several varieties, will be abundantly promoted in growth, by the application of an open and airy shade, as the wattled hurdle, when the fruit first inclines to maturity by changing colour : but little hot sun being thus admitted, and the ground thereby kept moderately cool, a greater length of time will be thus afforded to perfect the growth of the fruit.

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*Advantage of the Jerusalem Artichoke for Shade.*

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*Preserving Fruit.*

No article can possibly be found better calculated to effect the purpose of preserving these fruits beyond the common season of maturity by shade, than the Jerusalem Artichoke, planted at convenient distances on the south side, to form a permanent and due north border, where the situation is open.

Thus admitting the early morning and late evening sun, together with the drying air common in the warm summer months, between the leaves of the *Helianthus Tuberosus*, the fruit in dry seasons will be long and well preserved from mould or damp.

As it will always be advantageous to obtain this shade or protection from the sun as early as possible after first planting these roots, prefer those which are first dug out of

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*To form Shade by Jerusalem Artichoke.*

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the ground in October, or they probably may not attain sufficient altitude of growth to protect the trees bearing fruit so early as July, especially if planted late in the spring.

Thus, it will probably happen, that the fruit on the outer row on the north side of the bed, may not receive the shade intended sooner than they are about to become ripe, when, in July, they will be open to all except the mid-day sun.

*To form Shade by Jerusalem Artichoke.*

See described under the article **STRAW-BERRY.**

Having described the necessary culture, we proceed to offer a novel and

*Improved Mode of Propagation.*

THE propagation of this tree is universally understood to be effected by planting

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Improved Mode of Propagation.

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cuttings ; but an improvement of no inconsiderable importance in their propagation, as well as culture, has been discovered in the practicability of obtaining not only young trees more speedily, but, with the utmost certainty, any desirable variety of this fruit, by—“*planting cuttings*” during the summer months, when we have ocular demonstration of fully ripe and perfected fruit, even of the superior sorts growing on the trees ; and by which they will have formed considerable protuberances, or some roots, before winter ; that much time will be saved in the growth of the young plants, and by which we obtain with certainty, any particular variety we are desirous of cultivating.

The fittest cuttings to be selected for this purpose, are those from the bearing branches, six to eight inches in length, taking each cutting with its entire base or foot, together with the heel, as they are denominated, by

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The most favourable Months for Planting.

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slipping them out. Such cuttings of moderate growth and strength, will form better plants than more luxuriant shoots from the stem or any other part of the tree.

July and August are to be considered the most favourable months for planting, which may be always best determined, by the situation in which the trees from whence the cuttings intended to be taken, are found growing, whether in the sun or shade, and where the wood will be more or less hard.

By taking cuttings from bearing trees, in July, or after Midsummer, they will not only be in excellent condition to plant, but those remaining on the trees will become more strong, and better able to produce superior fruit the following season.

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Method of preparing the Cuttings.

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*Preparing Ground for Cuttings.*

THE situation in which to form beds to receive these cuttings, must be similar to that in which we direct bearing trees to be planted ; that is, in an exposure fully open to the early morning and late evening sun, and unobstructed by trees or buildings ; without which there will be great danger of decay in cuttings by damp, or rotting off.

In cases where cuttings are of greater lengths than are recommended, it will be easy to form those which are over long, to one uniform size, by reducing the tops of the longest with a knife ; and prior to planting, prepare the foot of the cuttings slipped out, by cutting away the heel or lower extremity to little more than the extent of the foot, smoothing the edges of the outer bark throughout ; when cut away any small pieces



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Method of Planting.

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of old wood, which, in slipping out from the trees, may be found to adhere within the bottom of the cutting, forming the base somewhat round; when they will be ready to plant.

*Method of Planting.*

CUTTINGS being prepared, mark out the bed for their reception three feet wide, by a line on each side, evenly chopping down the earth with a clean spade within the lines, two inches deep; when dig out the soil regularly half a spit deep close to each, laying the same regularly on the outside of the lines placed to mark out the bed; wherewith, and at the same time, forming one regular embankment four to six inches in height throughout, the better to retain all waterings and falling showers through the summer season. This done, make even the bed designed to receive the

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**Method of Planting.**

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cuttings, affording it a moderate dressing of rich and very rotten manure about two inches thick, preferring that from an early formed hot-bed; spread the same regularly over the surface, and proceed to plant in the following manner :—

At either end, begin the work by throwing out a small trench as in common digging, marking out the ends of the bed as before on the sides; having dug even the ground about eight inches from the end of the bed, and being provided with two sticks six inches long, measure out that distance on each side from the end; then mark out a line by laying a straight staff three feet in length, directly across the bed, lightly pressing it on the new dug ground, to form a direct line by which to plant the first row of cuttings; when, with a clean spade, chop away the earth evenly aslope, three to four inches deep, against which to place the cut-

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Method of Planting.

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tings, in such manner, that their tops appear regularly above the surface about two inches ; then return the loose soil which has been cast back from the line to the cuttings, lightly earthing them up about half their length, and proceed to dig the ground little more than six inches, to receive other cuttings, by marking across, and chopping aslope the ground, and planting others as before, clearing away all weeds and stones, until the bed is completed. Observe, on no account to press the earth to the cuttings in the smallest degree, that all waterings may be freely discharged ; as a retention of moisture, from trampling the earth to the cuttings, will infallibly rot and decay them.

On the business of planting being completed, make the surface of the embankment as smooth as possible, by striking the earth of which it is formed on each side

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**Planting the Cuttings.**

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with the back of the spade, to render it more firm, and prevent the water, in the smallest proportion, running off.

Soon as the cuttings are planted, or on the evening of the same day, it will be necessary to deluge the ground by lightly watering with a pot or pan, having a fine rose, until the ground become muddy wet, to settle the soil about them, and prevent the admission of drying air, and winds. Future waterings will require to be administered, according as the season proves warm or hot, which are only to be considered necessary when the surface of the ground appears dry, and must be afforded in moderate proportions, not to endanger the cuttings by over moisture, always performing this business towards night; and on the same or following day apply the temporary skreen or wattled hurdle, to protect these newly planted cuttings from the hottest sun.

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Clearing the Weeds from the Cuttings.

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This article, as recommended for the culture of Strawberry and the Raspberry, may be very advantageously applied in the propagation of these trees, by cuttings planted in the warm summer months, to protect them from the more violent or mid-day sun ; but on their being planted not earlier than the latter end of July, or beginning of August, a superior protection or shade will be afforded by the *Helianthus Tuberosus*, or *Jerusalem Artichoke*, planted and cultivated as has been directed for preserving the fruit of Strawberries beyond their common season.

About Michaelmas, when the soil is dry, and before autumn, or winter rains fall, with a sharp hoe, four inches wide, cut up and clear away all weeds growing in and between the rows of cuttings ; on making even the surface throughout the bed, lay rotten and finely broken hot-bed manure,

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To keep the Beds sufficiently watered.

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about an inch thick, regularly between the rows ; then reduce the embankment formed at the time of planting on the sides and ends of the bed, by throwing away the earth, the more readily to shoot off all wet to prevent inundation from heavy rains and dissolving snows.

Early in the spring, on the weather becoming dry, make clean the surface of the ground, with a sharp hoe, between the rows throughout, renewing the embankment on each side, and at the ends of the bed, the better to retain all copious rains or waterings during the spring and summer seasons ; and on the first symptom of the ground becoming dry, which sometimes happens in March and April, it will be advantageous to deluge the bed by one copious supply of water, gently administered by a pot or pan having a rose, as at first planting, the more effectually to secure them against extreme drought of the

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Necessity of keeping the Cuttings clear from Weeds.

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spring, which may occasionally be repeated until Midsummer, on the season proving warm and dry.

Such waterings can be only necessary on the ground becoming dry, and will require to be seldom but freely afforded.

The only culture requisite during the summer will be that of keeping them clear from weeds.

In the autumn, and within sixteen months from the time of planting, sufficient well-rooted trees will be afforded finally to transplant into most situations, which may be reduced by the knife to any particular form, according to the purpose for which they are designed.

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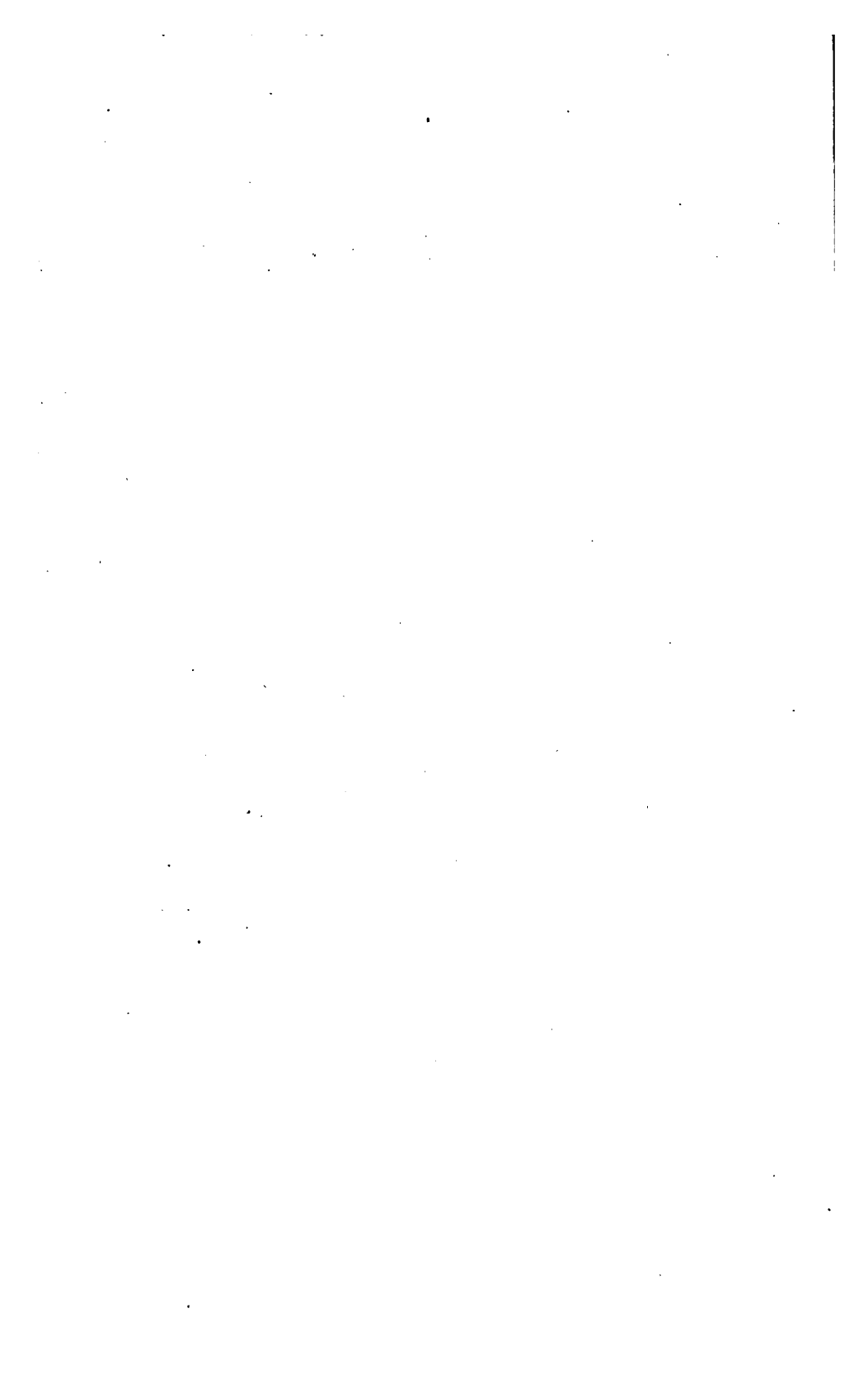
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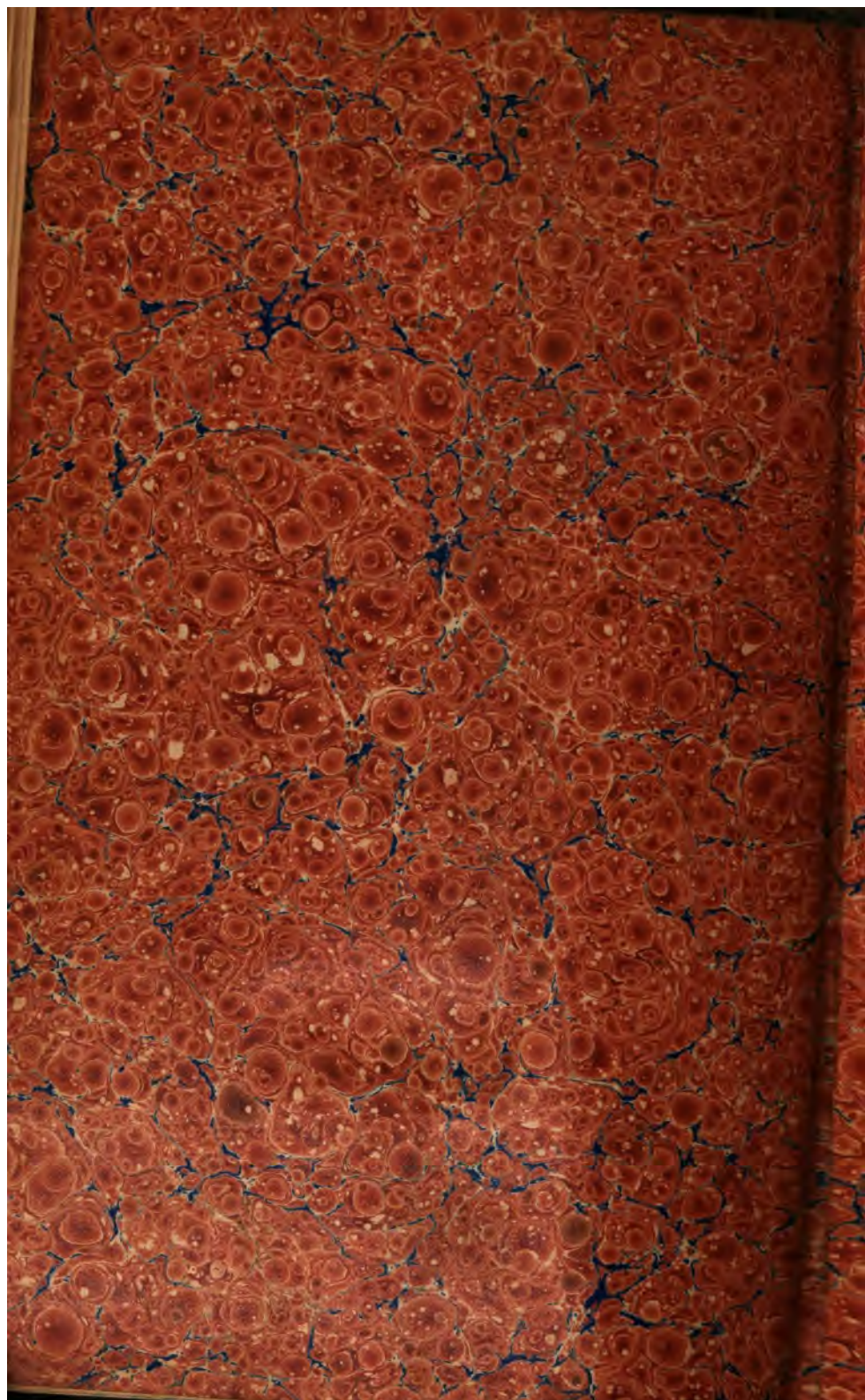
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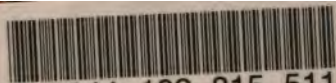








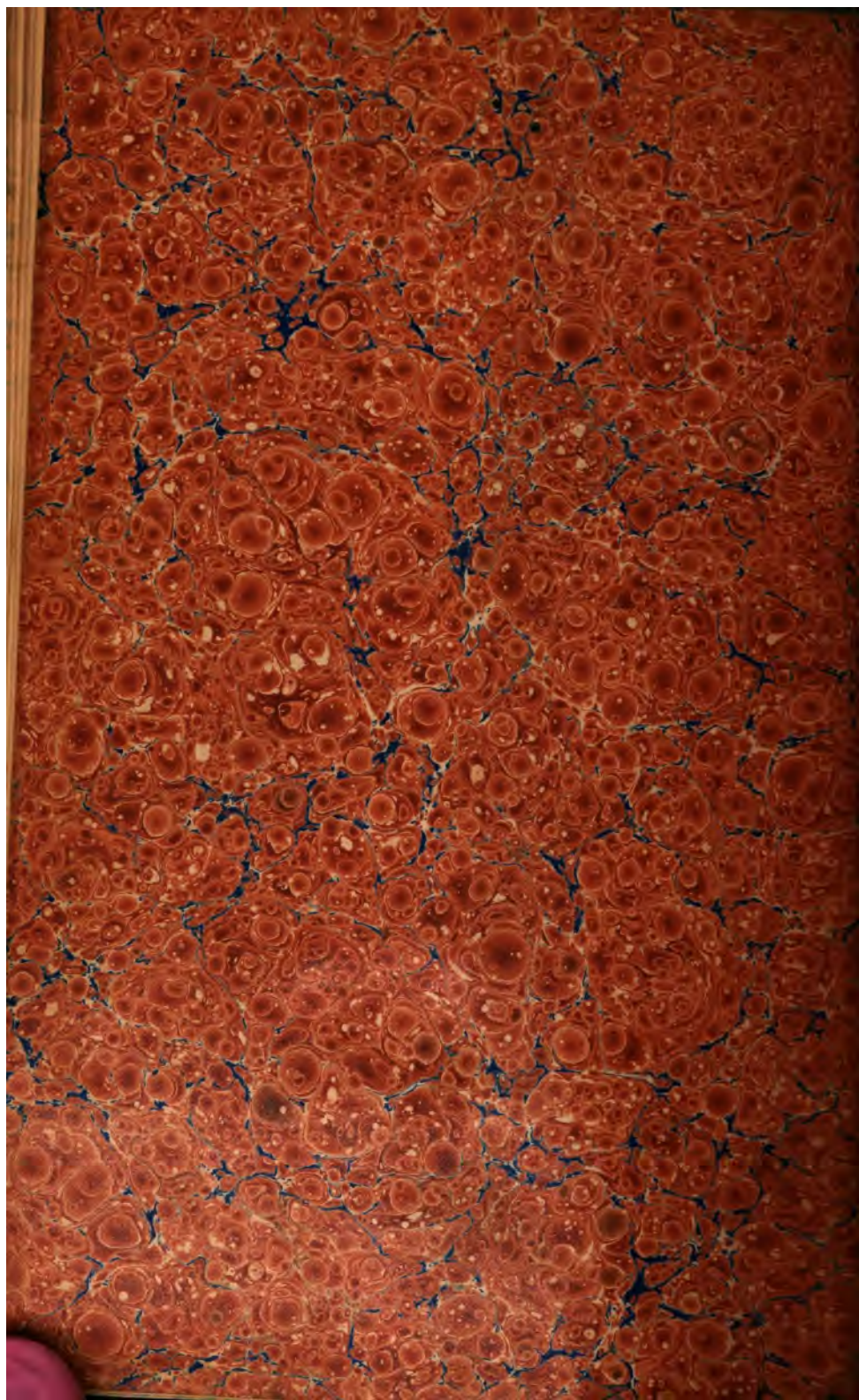




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